

ICE COBOTICS

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Operator & Parts Manual

Rider Auto Scrubber



RS28L-CY



READ OPERATOR MANUAL CAREFULLY!

IMPORTANT: To ensure full warranty protection, please fill out & return your warranty card.

Please fill out at time of installation for future reference.

Model No. _____

Serial No. _____

Machine Options _____

Sales Rep. _____

Sales Rep. Phone No. _____

Customer ID Number _____

Installation Date _____

HOW TO ORDER PARTS

Only use ICE Cobotics Company supplied or equivalent parts. Parts and supplies may be ordered online, by phone, by fax or by mail.

1. Identify the machine model.
2. Identify the machine serial number from the data label.
3. Ensure the proper serial number is used from the parts list.
4. Identify the part number and quantity.
Do not order by page or reference numbers.
5. Provide your name, company name, customer ID number, billing and shipping address, phone number and purchase order number.



PROTECT THE ENVIRONMENT

Please dispose of packaging materials, old machine components such as batteries, hazardous fluids, including antifreeze and oil, in an environmentally safe way according to local waste disposal regulations.



Always remember to recycle.

ICE Cobotics (GuangDong) Company Limited

XiangShi Road LiaoBu DongGuan GuangDong China

Tel: 0769 - 81869000

Fax: 0769 - 81863000

Specifications and parts are subject to change without notice.

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SAFETY PRECAUTIONS

This machine is intended for commercial use. It is designed exclusively to scrub hard floors in an indoor environment and is not constructed for any other use. Only use recommended accessories.

All operators shall read, understand and exercise the following safety precautions:

1. Do not operate machine:

- Unless trained and authorized.
- Unless you have read and understand the operators manual.
- In flammable or explosive areas.
- With brake disabled.
- If not in proper operating condition.

2. Before starting machine:

- Make sure all safety devices are in place and operate properly.
- Check brakes and steering for proper operation.

3. When using machine:


- Go slow on inclines and slippery surfaces.
- Follow all safety guidelines.
- Be very careful when using the machine in reverse.
- Reduce speed when turning.
- Report and fix any damage to machine prior to operating it.
- Never allow children to play on or around.

4. Before leaving or servicing machine:

- Stop on level surface.
- Turn off machine.

5. When servicing machine:

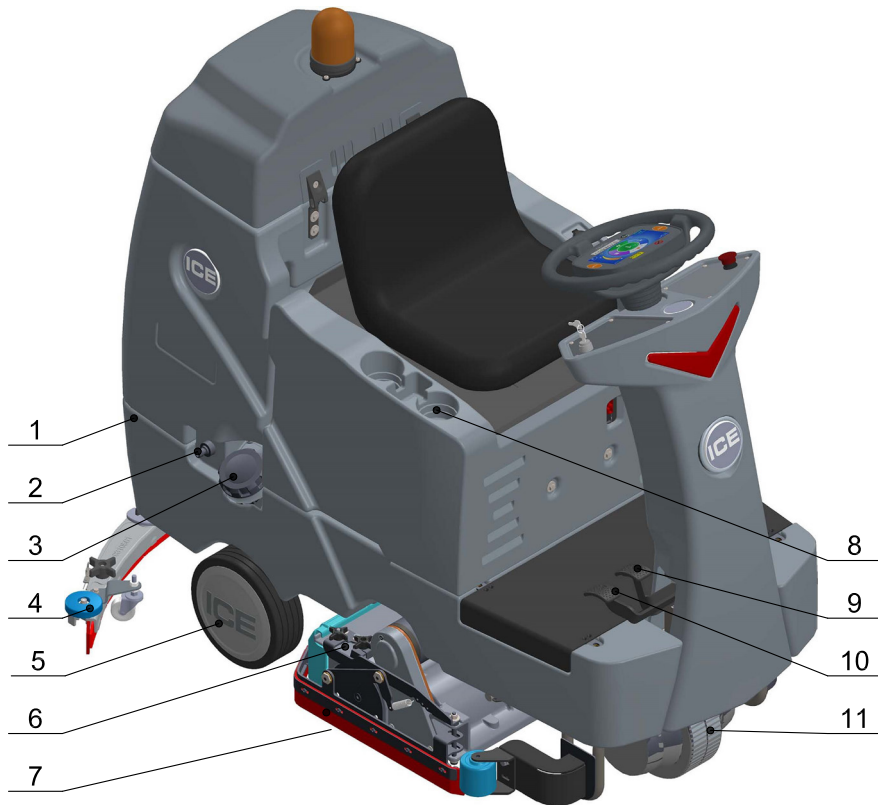
- Read operators manual thoroughly prior to operating or servicing this machine.
- Use manufacturer supplied or approved replacement parts.
- Secure machine with wheel blocks prior to jacking the machine up.
- Use approved jack or hoist to safely elevate the machine.
- Disconnect batteries prior to working on machine.
- Avoid moving parts. Do not wear loose fitting clothing while servicing machine.

 **WARNING:** Explosion or fire can result from hydrogen gas. Keep sparks and open flames away! Keep battery compartment open when charging.

 **WARNING:** Flammable materials can cause an explosion or fire. Do not use flammable materials in tanks.

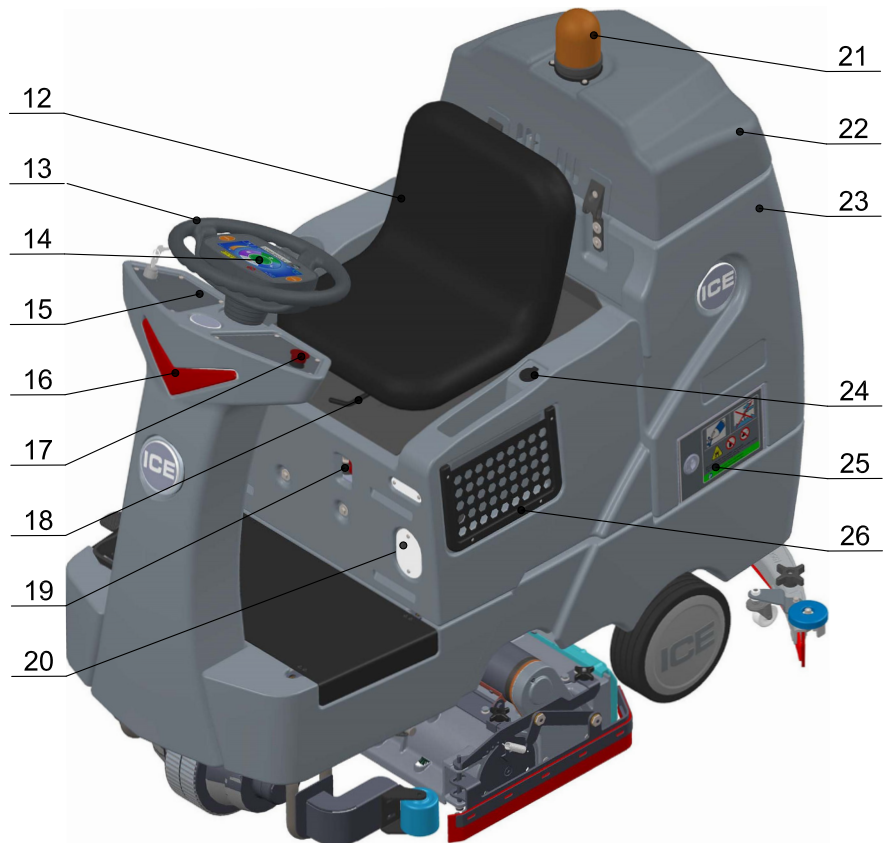
 **WARNING:** Flammable materials or reactive metals can cause explosion or fire. Do not pick up.

MACHINE COMPONENTS



- 1. Solution tank
- 2. Auto-fill hose port (Option)
- 3. Hose fill port & Cap
- 4. Squeegee assembly
- 5. Wheels, 10 inch
- 6. Cylindrical head assembly
- 7. Side squeegee assembly
- 8. Cup holder
- 9. Brake pedal
- 10. Propel pedal
- 11. Front drive wheel

- 12. Operator seat
- 13. Steering wheel
- 14. Control panel, Touch screen
- 15. i-synergy™, ID card scanning area
- 16. LED light, work
- 17. Emergency Stop button
- 18. Adjusting handle, seat
- 19. Off-board battery charger port (Option)
- 20. Watching window, On board battery charger
- 21. Warning light
- 22. Recovery tank cover
- 23. Recovery tank
- 24. USB Charging port
- 25. Cabin door, Detergent bottle compartment
- 26. Mesh, Battery charger power cord.



MACHINE COMPONENTS



- 27. Horn button
- 28. Battery meter
- 29. Date & Time
- 30. Solution flow adjusting button
- 31. 1-Step starting button
- 32. Work mode select button
- 33. Detergent adjusting button
- 34. Timer
- 35. Brush pressure adjusting button
- 36. Direction button
- 37. Setting button
- 38. Vacuum motor button
- 39. Fault icon
- 40. Warning light button
- 41. Drain hose, recovery tank
- 42. Vacuum hose
- 43. Drain hose, solution tank
- 44. Adjusting knob, Squeegee

i-synergy™ INTRODUCTION

i-synergy™ collects operational data from cleaning machines and transmit the information to ICE's server. The ICE server generates daily reports and send them to designated end users by email. From these reports, end users will have information about machines' usage and even specific timings.

Besides, i-synergy™ also collects data on lithium-ion battery, vacuum motor, brush deck motor, transaxle, and other electrical components at least once every minute when the machine is in use and even during battery charging.

i-synergy™ will send notifications instantly to the ICE server in case of any malfunction. ICE maintenance personnel will receive a SMS within minutes from the ICE server for immediate servicing.

MACHINE SET UP & INSTALLATION

UNCRATING MACHINE

Be sure and check packing carton for any damage. Immediately report any damage to carrier. Check the contents of package to ensure that the following items are included:

- Machine
- Lithium-ion Batteries
- Squeegee assembly
- 2-Cylindrical Brushes

1. Uncrate the wooden box, place the top board on the edge of pallet, lie in the front of the machine, as below shown.



! WARNING: Do not operate machine unless you have read & understood this manual.

2. Install batteries. (see *INSTALLING BATTERIES*)
3. Place the ID card on the scanning area (Machine components, #15) to turn on the machine, make sure the Squeegee assembly (Machine components, #4) and the Cylindrical assembly (Machine components, #6) is off the floor.
4. Sit in the Operator seat (Machine components,

#12), hold the Steering wheel (Machine components, #13), press the Propel pedal (Machine components, #10) and driving slowly the machine down from the slope.

INSTALLING BATTERIES

The machine uses the Lithium-ion batteries, the batteries are already in the machine upon delivery; However you will need to connect the Lithium ion batteries to the machine.

! WARNING: Fire or Explosion Hazard. Keep sparks and open flames away! Keep battery compartment open when charging.

1. Turn off the machine.
2. Open and prop up the Operator seat, plug the batteries connector to the machine adaptor, connect machine i-synergy™ COM port to the batteries.

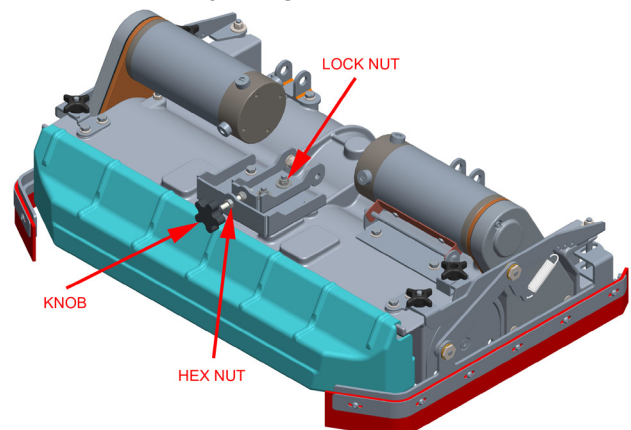
INSTALLING BRUSH

1. Turn off the 1-Step starting button (Machine components, #31) and raise the cylindrical assembly off the floor, then stop machine on the level surface, ensure the machine is turned off.
2. Remove Brush door from the Cylindrical scrub head assembly by loosening the knob.
3. Attach brush door to the brush end that has the double row of brushes to install bursh.
4. Check the brushes to ensure they are properly adjusted.

INSPECT THE BRUSH PATTERN

After installing a new set of cylindrical brushes check the brush pattern to ensure proper brush adjustment.

1. Measure the distance from the front edge of the scrub head to the floor and from the back edge of the scrub head to the floor. The measurements should be the same.
2. To level the scrub head, loosening the Lock Nut and the Hex Nut, adjusting the Knob to adjust the Cylindrical head properly, and then tighten them when adjusting finished.



OPERATOR MANUAL

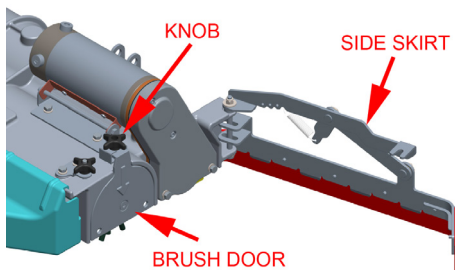
3. Position the machine on a dry dusty floor or apply a powdered substance, such as chalk.
4. Do not sit in the seat and adjust the solution flow to 0, turn on the 1-step starting button to lower the Cylindrical head on the floor.
5. Press down the Propel pedal and let the Cylindrical brushes work a while, and then turn off the 1-step starting button to raise the Cylindrical head and drive the machine away.
6. Observe the brush patterns. If the brush pattern is the same width across the entire length of each brush and both brushes are the same width (Shown as blew), no adjustment is necessary. If it is uneven or tapered, adjustment is required.

Correct Brush Pattern

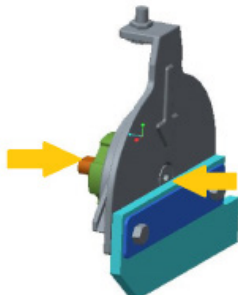


TO ADJUST A TAPERED BRUSH PATTERN

1. Remove the brush door from the brush by loosening the knob.



2. Hold the brush plug shaft with a wrench and loosen the 6mm hex screw.



3. To lower the brush end, turn the shaft clockwise for the front brush and counter-clockwise for the rear brush. Retighten hex screw.
4. Recheck brush pattern.
NOTE: Replace brushes when worn to 5/8" (15mm).

MOUNTING THE SQUEEGEE ASSEMBLY

1. Turn off the 1-Step switch and raise the Squeegee assembly off the floor.
2. Mount the squeegee assembly to the squeegee pivot bracket. make sure the knobs are completely seated into the slots before securing knobs.
3. Connect the Vacuum hose (Machine components, #42) to the squeegee assembly. Loop the hose by using the hose clip provided.

4. Check the squeegee blades for proper adjustment by adjusting the Squeegee adjusting knob (Machine components, #44).

FILLING THE SOLUTION TANK

The machine is equipped with a Hose fill port (Machine components, #3) at the side of the machine, and a bucket fill-port located under the recovery tank.

Fill solution tank with water (not to exceed 60°C/140°F). Pour a recommended cleaning detergent into the solution tank according to mixing instructions on the container.

NOTE: Before accessing the bucket fill-port make sure that the recovery tank is empty. When filling the solution tank with a bucket, make sure that the bucket is clean. Do not use the same bucket for filling and draining the machine.

AUTO-FILL HOSE PORT(OPTION)

The machine have a optional Auto-fill hose port (Machine components, #2), you can fill the Solution tank by using filling hose equipped with Quick connectors.

1. Connect the Quick connector of the filling hose to the Auto-fill port and connect the another end to the water supply connector.
2. Turn the water supply on, the water flow will automatically shut off when solution tank is full, and then turn the water supply off.
3. Disconnect the Quick connector from the water supply end first, and then disconnect the Filling hose from machine and store in proper location.

! WARNING: Do not put any flammable materials into solution tank. this can cause an explosion or a fire.

FILLING THE DETERGENT BOTTLE

The machine is equipped with a 4 liters Detergent bottle under the Recovery tank. You can fill the Detergent bottle by opening the Deterent bottle cabin door (Machine components, #25), and removing the detergent bottle cap.

The ratio of water and detergent is 0~5%, you can adjust this ratio via pressing the Detergent adjusting button (Machine components, #33).

NOTE: Only use recommended cleaning chemicals. Contact your janitorial supply distributor for recommendations on proper chemicals.

MACHINE OPERATION



WARNING: Do not operate machine unless you have read and understand this manual.

PRE-OPERATION CHECKS

1. Check the tank cover seals for damage.
2. Drain the recovery tank, check the vacuum fan inlet filter, clean them if necessary.
3. Check the vacuum hose for debris or blockage.
4. Check the squeegees for damage, wear and for deflection adjustment.
5. Check whether Brushes is installed properly .
6. Check the brakes and steering for proper operation.

OPERATION THE MACHINE

1. Sit on the Operator seat, adjusting the seat to comfortable place by pushing the Seat adjustment handle (Machine components, #18).

NOTE: The machine will not travel unless the operator is sitting in the operator seat.

2. Turn on the machine.
Check the Touch screen (machine components, #14) , if the machine have fault there will have a Fault icon display and blinking (Machine components, #39), please Do Not operation the machine unless the faults have been eliminated (please see *FAULT CODES AND ELIMINATE* section).
3. Select the proper working mode by pressing the Work mode select button (Machine components, #32). The machine have 3 Modes of ECO, HEAVY Duty and User custom.

NOTE: To energy saving, recommend to using the ECO mode as possible.

- For the User custom mode, you can select the preferred settings by pressing the Solution flow adjusting button (Machine components, #30), Detergent adjusting button (Machine components, #33), and the Brush pressure adjusting button (Machine components, #35).
4. Turn on the 1-Step starting button, the Scrub head assembly and the Squeegee assembly will lower down automatically, all the presetting functions will turn on.
 5. The machine can scrub in both forward and backward, press the Directional button (Machine components, #36) to select the direction. The horn will sound and the squeegee will raise automatically (the vacuum motor will turn off after a short delay) when drive machine backwards. This is to prevents damaging the

squeegee.

NOTE: Go slow when drive machine backwards.

6. Press the Propel pedal, the machine start scrubbing, the speed can be adjusted by controlling the force of foot stepping, light is slow, heavy is fast.
NOTE: Go slow on inclines and slippery surfaces.
7. To stop scrubbing, turn off the 1-Step starting button, the scrub head will raise automatically, the squeegee will also raise after a short delay, please keep moving until the dirty water is picked up, and then release the propel pedal and stop scrubbing.
8. Turn off the machine.

BRAKE DEVICE

The machine is driven by the Front drive wheel (Machine components, #11), that is equipped with a brake device. When you release the Propel pedal, the machine will stop travel, the park brake will engage after a short delay.

The machine is equipped with a Brake pedal (Machine components, #9), that can be used to control the machine if quicker stopping is needed or if operating on an incline.

EMERGENCY STOP BUTTON

The machine is equipped with an Emergency stop button (Machine components, #17), please push it if any emergency, that will shut off all power of machine and brake immediately.

To restart the machine, please reset the Emergency stop button, and turn off the machine and then restart.

NOTE: Please hold the steering wheel when emergency stop.

WHILE OPERATING MACHINE



WARNING: Fire Or Explosion Hazard. Do Not Pick Up Flammable Materials Or Reactive Metals.

1. Go slow on inclines and slippery surfaces, go slow when turn and reverse. Do not operate the machine on inclines that exceed 7% (4°).
2. Drive machine in a straight path as possible, avoid turning the Steering wheel too sharply when machine is in motion. avoid sudden turns except emergencies.
3. Do not keep the machine in the same position with pad / brush spinning, keep the machine moving to prevent damage to floor finish.

OPERATOR MANUAL

4. If the squeegee assembly leaves streaks on the floor, raise the squeegee off the floor and wipe the blades down with a damp cloth. Pre-sweep the area to prevent leaving streaks on the floor.
5. To obtain the optimum cleaning performance, you can adjust the brush pressure, solution flow and detergent dosage as your required. If poor picking up water performance is observed, please stop scrubbing and check the squeegee blade, adjust or replace if necessary.
6. If the dirty water path exceed the width of squeegee, please adjust the side squeegee assembly.
7. Pour a recommended defoamer into the recovery tank if excessive foam appears.



WARNING: The foam do not activate water level switch, excessive foam may result in vacuum motor damage.

8. Press the Horn button (Machine components, #27) to alert if necessary.
9. The machine is equipped with a Warning light (Machine components, #21), you can select turn ON or OFF by the Warning light button (Machine components, #40).
10. If there have Fault icon display and blinking on the touch screen, please stop using the machine and to eliminate the fault (Please see FAULT CODES AND ELIMINATE section).
11. For heavily soiled areas, please use HEAVY DUTY SCRUBBING mode by work mode select button.
12. If you only want to pick up water needn't scrubbing, Turn on the Vacuum motor button(Machine components, #38) , the squeegee will lower down, and turn off the 1-Step starting button (if it is ON), the scrub head will raise and then start to picking water up.

TANK DRAINING

DRAINING THE RECOVERY TANK

Any time scrubbing is completed, or when refilling solution tank, the recovery tank should be drained and cleaned.



WARNING: If the recovery tank is not drained when the solution tank has been refilled, foam or water may enter the float shut-off screen and cause damage to the vacuum motor.

1. While holding the Recovery tank drain hose (Machine components, #41) upward, remove the cap and lower hose to drain.
2. Open the Recovery tank cover (Machine components, #22) and rinse out the tank. Use a rag to remove any excess dirt.
3. Remove and clean the vacuum fan inlet filter located in the recovery tank. Clean the filter with a damp cloth or low pressure water hose if dirty. Allow the vacuum fan filter to dry completely before reinstalling it in the machine.

DRAINING THE SOLUTION TANK

Any time scrubbing operation is completed, the solution tank should be drained and cleaned.

1. While holding the Solution tank drain hose (Machine components, #43) upward, remove the cap and lower hose to drain.
2. Rinse the solution tank with clean water after every use. This will help prevent chemical buildup and clogging of the solution lines.

BATTERY CHARGING



WARNING: Fire or Explosion Hazard. Keep Sparks and Open Flame Away. Keep Battery Compartment Propped Open When Charging.

Use only ICE supplied or approved batteries charger, use unapproved charger may cause damage to the batteries and machine.


Batteries charger specifications:


- **Applicable to charging Lithium-ion batteries**
- **Automatic shut off circuit**
- **Output current of 30 Amps**
- **Output voltage of 24 volts**

1. Transport the machine to a well ventilated area.
2. Turn the machine off.
3. Prop up the Operator seat by the support stand for ventilation.
4. Connect the charger's AC power supply cord to a properly grounded receptable.
5. The charger will automatically begin to charge, you can watching the charging status on the window (Machine components, #20), once the charging cycle begins, the indicator lights will progress from red, yellow to green. when the green indicator light comes on, the charging cycle is done. Unplug the charger cord.

NOTE: The machine will can not operate when charging.

PREVENTATIVE MAINTENANCE

 **WARNING:** Before performing any maintenance on the machine, be sure that the power is turned off, or the batteries are disconnected!

 **WARNING:** Repairs are to be completed by Authorized service centers only. Any repairs completed by unauthorized persons will void the warranty.

DAILY MAINTENANCE

1. Remove pad driver/ brush and clean with approved cleaner.
2. Drain recovery and solution tanks completely and rinse out with clean water. Visually check the recovery tank for debris and clean out as necessary.
3. Raise the squeegee assembly off floor and wipe it down with a damp towel. Be sure to store the squeegee in the up position.
4. Remove the vacuum fan inlet filter and rinse it out with clean water.
5. Clean machine with an approved cleaner and a damp towel.
6. Recharge the batteries.
7. Check the condition of the squeegee blade wiping edge, rotate blade if worn.

MONTHLY MAINTENANCE

1. Clean the battery tops to prevent corrosion.
2. Check for loose battery cable connections.
3. Inspect and clean the recovery tank cover seal. Replace it if damaged.
4. Lubricate all grease points and pivot points with silicon spray and approved grease.
5. Check the machine for loose nuts and bolts.
6. Check the machine for leaks.

MACHINE STORAGE

1. Always store the machine indoors.
2. Always store the machine in a dry area.
3. Always store the machine in its upright position.
4. Always store the machine with the pad driver/ brush raised off the floor.
5. Always store the machine with the squeegee assembly raised off the floor.
6. If storing in an area which may reach freezing temperatures, be sure to drain all fluids from the machine prior to storage. Any damage caused by freezing temperatures will not be covered by the warranty.
7. Drain the recovery tank.
8. Drain the solution tank of all fluid.

FAULT CODE & SOLUTION

The machine equipped with a 7-inch touch screen (Machine components, # 14), the touch screen will display Battery meter (Machine components, #28), Date and Time (Machine components, #29), and Working accumulated hours (Machine components, #34).

When the machine detects a fault, there will have a Fault icon blinking (Machine components, #39) on the touch screen accompany an audible alarm Occasionally.

The Fault icon have 2 colors. Yellow icon represents a low level fault, you can click it to pop up a fault message window, it will guide you how to eliminate the fault.

Red icon represents a serious fault, the fault message window will pop up automatically, you can not close it unless the fault be eliminated.

Once the fault icon occurring, please DO NOT continue operate machine unless the faults are eliminated.

Turn off the machine, then to solve the fault, the fault icon will be eliminated when machine restart.

If the fault icon is occurred frequently, or can't be eliminated, please contact ICE service center.

Please refer to the below table to determine the fault cause and the solution.

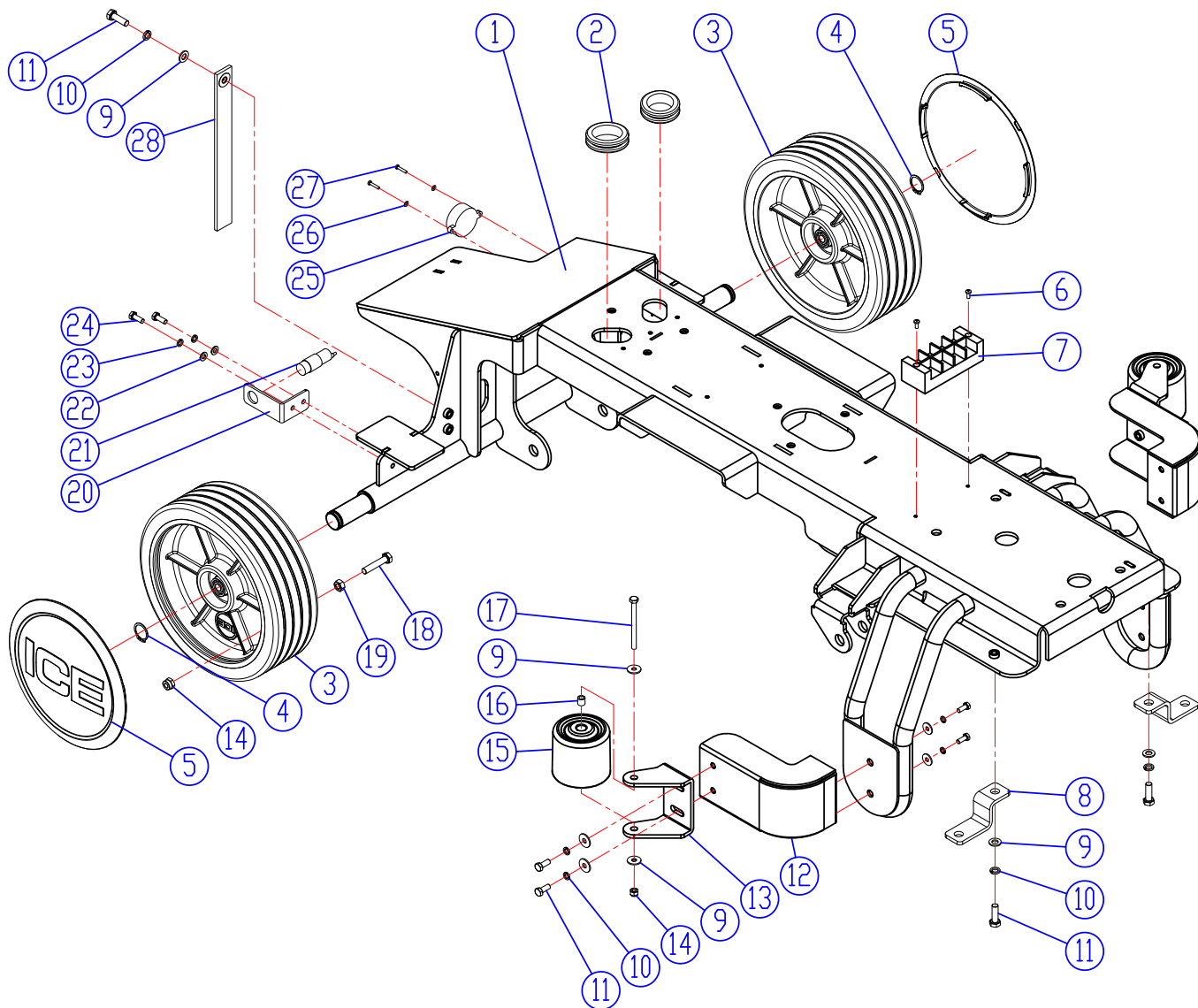
FAULT CODE & SOLUTION

| FAULT CODE | FAULT MESSAGE | SOLUTION |
|------------|--|---|
| F01 | Seat Empty | Sit in seat |
| F02 | Squeegee or Scrub head Actuator Overload | Check Squeegee or Scrub head Actuator |
| F04 | Vacuum Motor Overload | Check Vacuum Motor |
| F05 | Brush Motor (Left) Overload | Check Brush Motor (Left) |
| F06 | Brush Motor (Right) Overload | Check Brush Motor (Right) |
| F07 | Drive Motor Overload | Check Drive Motor |
| F08 | Recovery Tank Full | Drain Recovery tank |
| F09 | Solution Tank Empty | Refill Solution tank |
| F10 | Battery Low | Charge battery |
| F11 | Battery Discharged | Charge battery Immediately |
| F12 | Brake Open Circuit | Check brake wiring |
| F13 | Release Accelerate Pedal | Release the propel pedal |
| F14 | Brake Short Circuit | Check brake wiring |
| F16 | Main Controller Overheat | Turn off the machine and re-start after a while |
| F18 | Accelerator Sensor Open Circuit | Check accelerator sensor |
| F19 | Brake Sensor Open Circuit | Check Brake sensor |
| F20 | Brush Motor (Left) Open Circuit | Check Brush Motor (Left) Wiring and Connector |
| F21 | Vacuum motor Open Circuit | Check Vacuum motor Wiring and Connector |
| F22 | Solenoid Valve Short Circuit | Check Solenoid valve Wiring and Connector |
| F23 | Solenoid Valve Open Circuit | Check Solenoid valve Wiring and Connector |
| F24 | Drive Motor Open Circuit | Check Drive motor wiring and Connector |
| F25 | Brush Motor (Right) Open Circuit | Check Brush Motor (Right) Wiring and Connector |
| F40 | Wheel Paluse Sensor Fault | Check Proximity switch |
| F43 | Emergency Stop | Release Emergency stop button |
| F49 | Main Controller Fault | Replace Main controller |
| F50 | Main Controller Fault | Replace Main controller |
| F53 | Detergent Pump Short Circuit | Check Detergent pump Wiring and Connector |
| F54 | Detergent Pump Open Circuit | Check Detergent pump Wiring and Connector |
| F55 | Scrub Head Actuator Open Circuit | Check Scrub head actuator Wiring and Connector |
| F56 | Squeegee Actuator Open Circuit | Check Squeegee actuator Wiring and Connector |
| F57 | Flashing Light Short Circuit | Check Flashing light Wiring and Connector |
| F58 | Flashing Light Open Circuit | Check Flashing light Wiring and Connector |
| F61 | Main Relay (#1) Short Circuit | Check Main Relay (#1) Wiring and Connector |
| F62 | Main Relay (#1) Open Circuit | Check Main Relay (#1) Wiring and Connector |
| F63 | Main Relay (#2) Short Circuit | Check Main Relay (#2) Wiring and Connector |
| F64 | Main Relay (#2) Open Circuit | Check Main Relay (#2) Wiring and Connector |
| F65 | Drive Motor Short Circuit | Check Drive Motor Wiring and Connector |
| F67 | Brush Motor (Left) Short Circuit | Check Brush Motor (Left) Wiring and Connector |
| F68 | Brush Motor (Right) Short Circuit | Check Brush Motor (Right) Wiring and Connector |
| F69 | Vacuum Motor Short Circuit | Check Vacuum Motor Wiring and Connector |
| F70 | Scrub Head Actuator Short Circuit | Check Scrub head actuator Wiring and Connector |
| F71 | Squeegee Actuator Short Circuit | Check Squeegee actuator Wiring and Connector |

TECHNICAL SPECIFICATIONS

| MODEL | RS28L-CY |
|--|--|
| LENGTH | 63.4 in / 1,610 mm |
| WIDTH (MACHINE WITH SCRUB HEAD) | 34 in / 860 mm |
| HEIGHT | 56.7 in / 1,440 mm |
| WEIGHT | 640 lbs / 290 Kg |
| WEIGHT WITH BATTERIES | 900 lbs / 410 Kg |
| RECOVERY TANK CAPACITY | 27.7 Gal / 105 L |
| SOLUTION TANK CAPACITY | 28.5 Gal / 108 L |
| SQUEEGEE WIDTH | 40 in / 1,030 mm |
| CLEANING PATH WIDTH | 28 in / 710 mm |
| PRODUCTIVITY RATE PER HOUR (IN THEORY) | 49,500 ft ² 4,600 m ² |
| TRAVEL SPEED (TRANSPORT) | 4 Mile / h 6.5 Km / h |
| MINIMUM AISLE TURN | 75 in / 1,900 mm |
| PAD/BRUSH PRESSURE | 80 lbs / 35 Kg 120 lbs / 55 Kg 160 lbs / 75 Kg |
| SOLUTION FLOW | 0 ~ 0.7 Gal / Min 0 ~ 2.7 L / Min |
| BATTERIES | Lithium-ion batteries, 240AH |
| VOLTAGE | 24V DC |
| DRIVE WHEEL | 1.1 hp / 0.8 KW |
| BRUSH MOTOR | (2) 0.75 hp / 0.56 KW, 750 RPM |
| VACUUM MOTOR | 0.6 hp / 0.45KW |
| VACUUM WATER LIFT (MAX) | 70 in. H ₂ O / 1780 mm. H ₂ O |
| RUN TIME PER CHARGE | 3~3.5 Hours |
| DECIBEL RATING AT OPERATOR'S EAR, INDOORS | 68 dB(A) |
| GRADE LEVEL, MAX | Scrubbing: 4°/7% Transporting (empty):10°/17.5% |

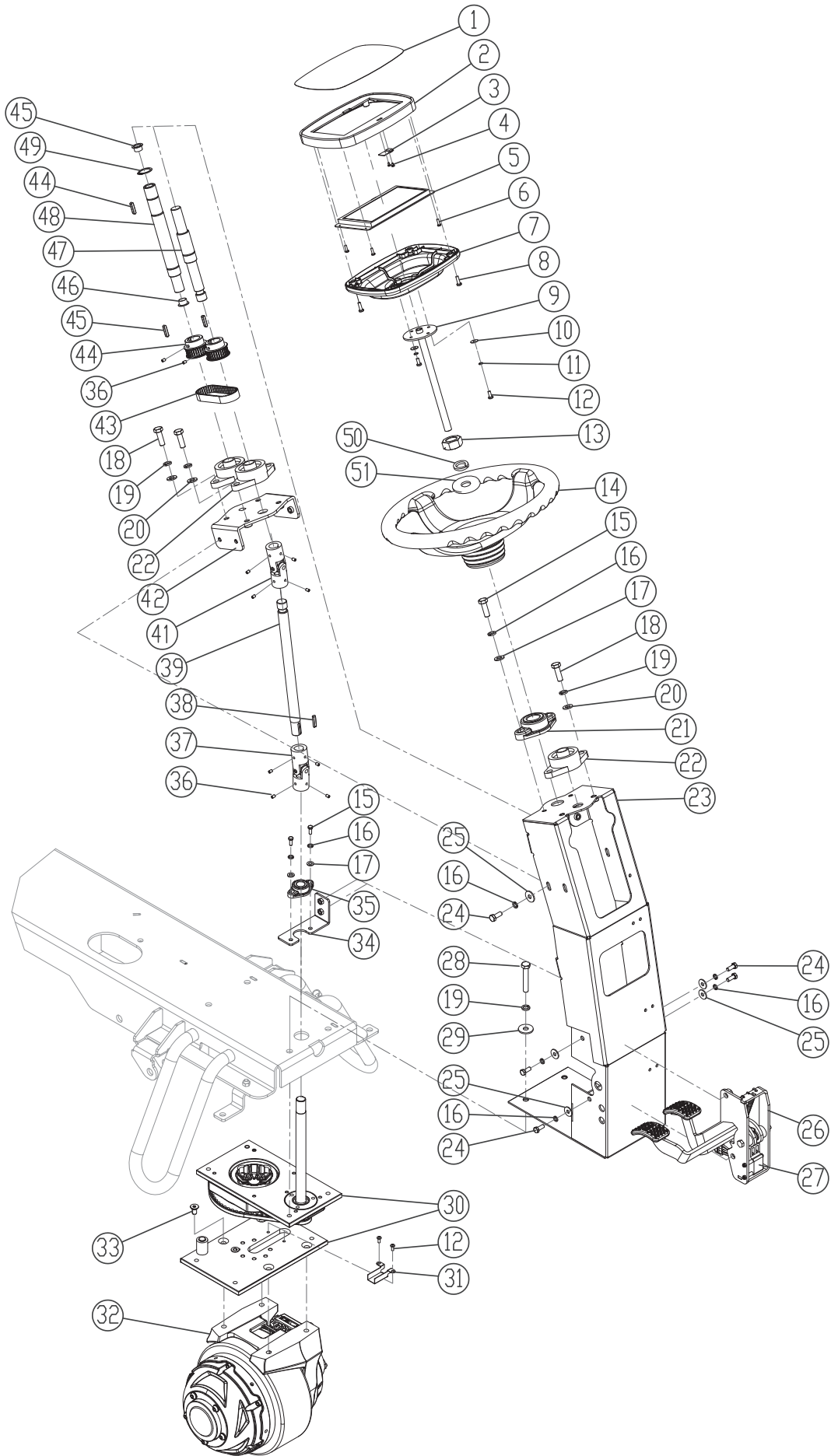
MAIN FRAME GROUP



MAIN FRAME GROUP

| DIA NO. | PART NUMBER | DESCRIPTION | SERIAL NUMBER | NO REQ'D |
|----------------|--------------------|------------------------------------|----------------------|-----------------|
| 1 | 8360150 | MAIN FRAME, WELDED | | 1 |
| 2 | 8310133 | RUBBER GROMMET | | 4 |
| 3 | 8310119 | 10" WHEEL, PU TIRE | | 2 |
| | 1612605 | BALL BEARING,6205-2RS | | 4 |
| | 8315250 | 10" WHEEL, ANTI-SLIP, OPTION | | 2 |
| 4 | 1436025 | RETAINING RING, 25MM | | 2 |
| 5 | 8310150 | WHEEL CAP | | 2 |
| 6 | 1221412 | SCREW, PAN HEAD, M4×12 | | 2 |
| 7 | 1883207 | BARRIER TERMINAL BLOCK | | 1 |
| 8 | 8310120 | BRACKET, STAND | | 2 |
| 9 | 1421824 | FLAT WASHER, M8× ϕ 24×2.0 | | 13 |
| 10 | 1422821 | LOCK WASHER M8 | | 11 |
| 11 | 1021825 | BOLT, HEX, M8×25 | | 11 |
| 12 | 8360170 | BRACKET | | 2 |
| 13 | 8310361 | BRACKET, PROTECTIVE WHEEL | | 2 |
| 14 | 1123810 | LOCK NUT M8 | | 3 |
| 15 | 8310362 | BUMPER WHEEL | | 2 |
| 16 | 8115404 | SLEEVE, ϕ 8× ϕ 12.7×12.7 | | 12 |
| 17 | 1022800 | BOLT, HEX HEAD, M8×100 | | 2 |
| 18 | 1021840 | BOLT, HEX, M8×40 | | 1 |
| 19 | 1121807 | HEX NUT,M8 | | 1 |
| 20 | 8310158 | BRACKET,PROXIMITY SENSOR | | 1 |
| 21 | 8134709A | PROXIMITY SENSOR,KIT | | 1 |
| 22 | 1421618 | FLAT WASHER, M6× ϕ 18×1.6 | | 2 |
| 23 | 1422616 | LOCK WASHER M6 | | 2 |
| 24 | 1021616 | BOLT, HEX, M6×16 | | 2 |
| 26 | 8310708A | HORN, 24VDC, KIT | | 1 |
| 26 | 1421307 | FLAT WASHER, M3× ϕ 7×0.5 | | 4 |
| 27 | 1221312 | SCREW, PAN HEAD, M3×12 | | 2 |
| 28 | 8210118 | STATIC STRAP | | 1 |

STEERING & DRIVE WHEEL GROUP



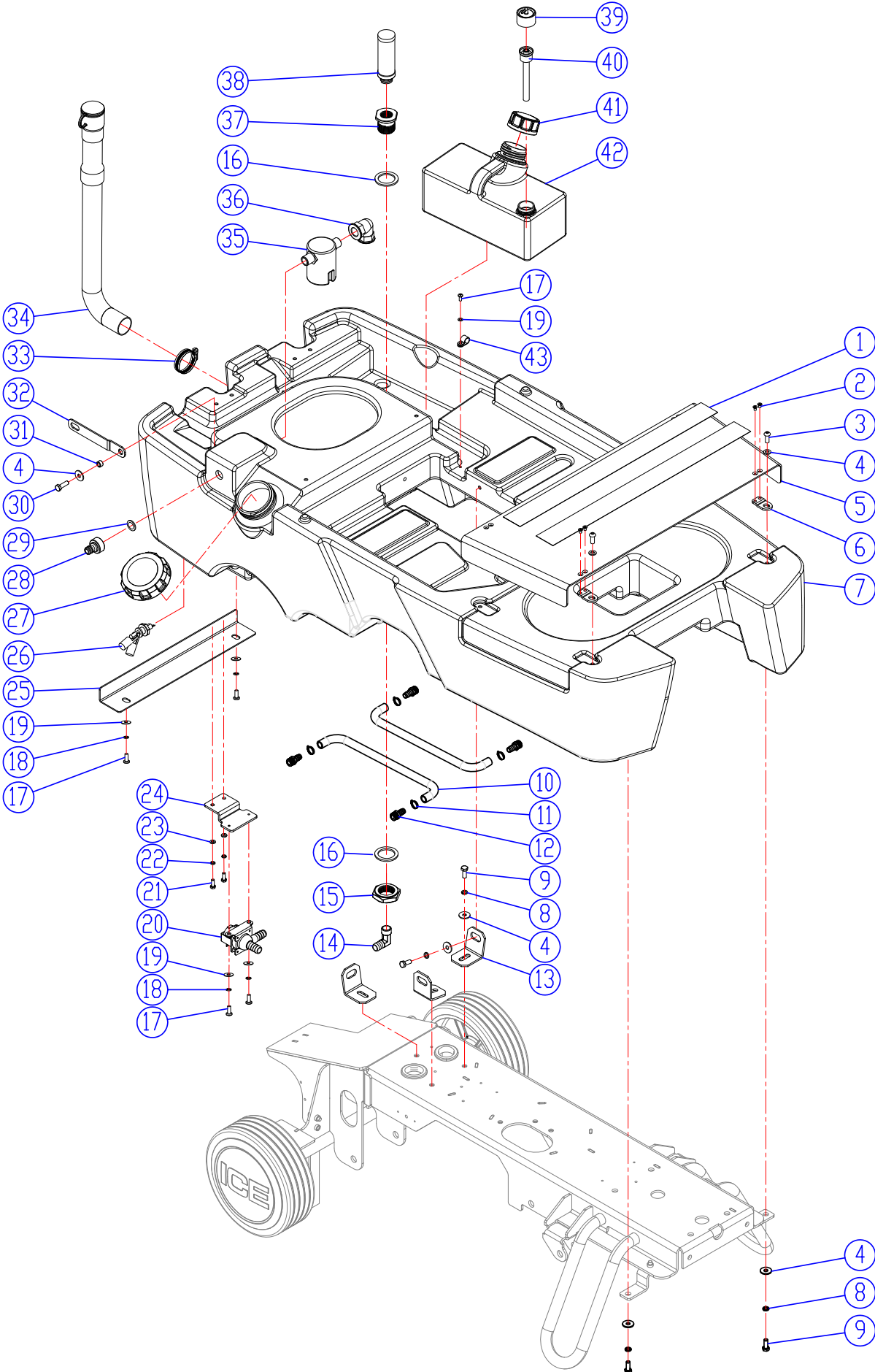
STEERING & DRIVE WHEEL GROUP

| DIA NO. | PART NUMBER | DESCRIPTION | SERIAL NUMBER | NO REQ'D |
|---------|-------------|------------------------------|------------------------------|----------|
| 1 | 8313704 | DECAL, TOUCH SCREEN PANEL | | 1 |
| 2 | 8313703 | COVER, TOUCH SCREEN | | 1 |
| 3 | 8313723 | FPC CONNECTOR | | 1 |
| 4 | 1311006 | SELF-TAPPING CREW, ST3.0×6.0 | | 2 |
| 5 | 8313712B | TOUCH SCREEN, ENGLISH UI | | 1 |
| 6 | 1221306 | SCREW, M3×6 | | 4 |
| 7 | 8313702 | BASE, TOUCH SCREEN | | 1 |
| 8 | 1221516 | SCREW, M5×16 | | 4 |
| 9 | 8313701 | TUBE WITH FLANGE | | 1 |
| 10 | 1421515 | FLAT WASHER, M5×φ15×1.0 | | 4 |
| 11 | 1422513 | LOCK WASHER, M5 | | 4 |
| 12 | 1221512 | SCREW, PAN HEAD, M5×12 | | 6 |
| 13 | 8313612 | HEX NUT, M24 | | 1 |
| 14 | 1111221 | HEX NUT, M22 | ~60306100308 ~60307100235 | 1 |
| | 8313610 | STEERING WHEEL | | |
| 15 | 1021830 | BOLT, HEX HEAD, M8×30 | | 4 |
| 16 | 1422821 | LOCK WASHER, M8 | | 12 |
| 17 | 1421816 | FLAT WASHER, M8×φ16×1.6 | | 4 |
| 18 | 1021035 | BOLT, HEX HEAD, M10×35 | | 6 |
| 19 | 1422026 | LOCK WASHER, M10 | | 10 |
| 20 | 1421020 | FLAT WASHER, M10×φ20×2 | | 6 |
| 21 | 8313609 | FLANGE BEARING, PLASTIC | | 1 |
| 22 | 8313608 | FLANGE BAEARING | | 3 |
| 23 | 8313601 | STEERING SUPPORT | | 1 |
| 24 | 1021825 | BOLT, HEX HEAD, M8×25 | | 8 |
| 25 | 1421824 | FLAT WASHER, M8×φ24×2.0 | | 8 |
| 26 | 8310640 | ACCELERATOR & BRAKE ASSEMBLY | | 1 |
| 27 | 8310431 | HALL SENSOR WITH CABLE | | 1 |
| 28 | 1021050 | BOLT, HEX HEAD, M10×50 | | 4 |
| 29 | 1421030 | FLAT WASHER, M10×φ30×2.5 | | 4 |
| 30 | 8320685 | STEER-CONTROL ASSEMBLY | | 1 |

STEERING & DRIVE WHEEL GROUP

| DIA NO. | PART NUMBER | DESCRIPTION | SERIAL NUMBER | NO REQ'D |
|---------|-------------|--|--|----------|
| 31 | 8310687 | BRACKET, WIRING | | 1 |
| 32 | 8310680A | DRIVE WHEEL, 24VDC | | 1 |
| | 8310681 | REPLACEMENT,GREY ACCESSORIES FOR 8310680 | | 1 |
| | 8311690 | DRIVE WHEEL, 24VDC,OPTION | 60307100238~60307100257 60306100310~60306100337 | 1 |
| | 8311690-2 | REPLACEMENT,BLUE ACCESSORIES FOR 8311690 | | 1 |
| | 8311690-5 | ELECTROBRAKE ACCESSORIES FOR 8311690 | | 1 |
| 33 | 1513020 | SCREW, HEX SOCKET, M10×20 | | 4 |
| 34 | 8310645 | BRACKET, FLANGE BEARING | | 1 |
| 35 | 8310609 | BEARING, FLANGE | | 1 |
| | 8320609 | BEARING, FLANGE,OPTION | | |
| 36 | 1534508 | SET SCREW, M5 ×8 | | 8 |
| 37 | 8310614 | U-JOINT | | 1 |
| 38 | 1654025 | KEY, 4.75×4.75×25.4 | | 2 |
| 39 | 8313621 | SHAFT, STEERING | ~60306100308 ~60307100235 | 1 |
| | 8313624 | SHAFT, STEERING | | |
| 40 | 1531830 | HEX SOCKET CAPHEAD SCREW, M8×30 | | 2 |
| 41 | 8313620 | U-JOINT | ~60306100308 ~60307100235 | 1 |
| | 8313614 | U-JOINT | | |
| 42 | 8313602 | BRACKET, FLANGLE BEARING | | 1 |
| 43 | 8313607 | BELT | | 1 |
| 44 | 8313606 | PULLEY | | 2 |
| 45 | 1655025 | KEY, 5×5×25 | | 3 |
| 46 | 8313611 | BUSHING | | 2 |
| 47 | 8313622 | SHAFT, PULLEY | ~60306100308 ~60307100235 | 1 |
| | 8313625 | SHAFT, PULLEY | | |
| 48 | 8313605 | SHAFT , PULLEY | | 1 |
| 49 | 1436025 | RETAINING RING, 25MM | | 3 |
| 50 | 1422226 | WASHER LOCK Φ22 | | 1 |
| 51 | 1421229 | FLAT WASHER,Φ22×Φ39×3 | | 1 |

SOLUTION TANK GROUP



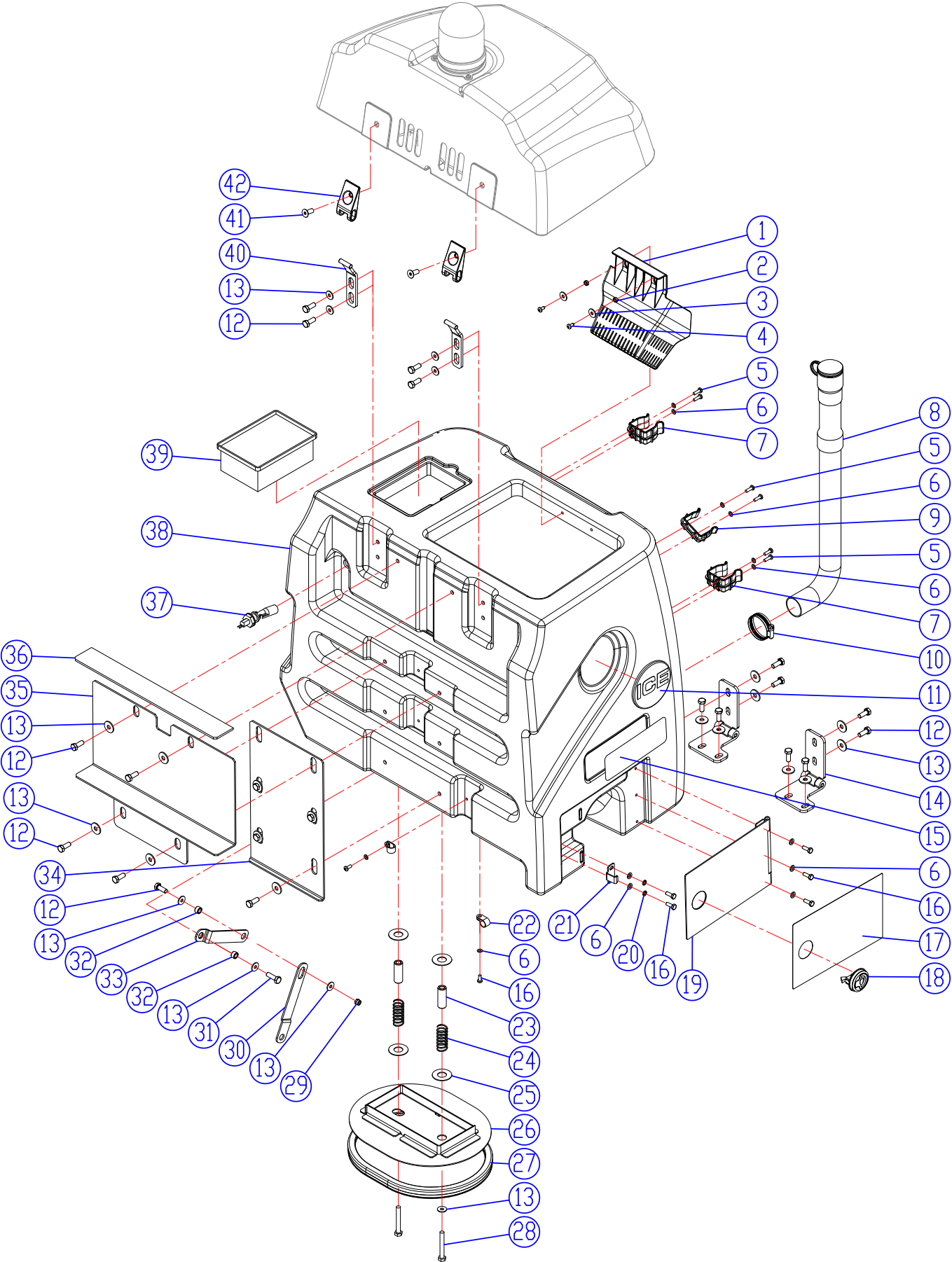
SOLUTION TANK GROUP

| DIA NO. | PART NUMBER | DESCRIPTION | SERIAL NUMBER | NO REQ'D |
|---------|--------------------|-------------------------------------|---------------|----------|
| 1 | 8310132 | NON-SLIT MAT | | 2 |
| 2 | 1222508 | SCREW, M5×8 | | 8 |
| 3 | 1512820 | SCREW, HEX SOCKET M8×20 | | 4 |
| 4 | 1421824 | FLAT WASHER, M8× ϕ 24×2.0 | | 13 |
| 5 | 8320102 | FOOTREST PLATE | | 1 |
| 6 | 8310140 | JUNCTION PLATE | | 4 |
| 7 | 8360101 | SOLUTION TANK | | 1 |
| 8 | 1422821 | SPRING LOCK WASHER, M8 | | 8 |
| 9 | 1021820 | BOLT, HEX HEAD, M8×20 | | 8 |
| 10 | 8210902 | TUBING, ID=12MM, L=400MM | | 2 |
| 11 | 1962016 | CLAMP, 10-16mm | | 4 |
| 12 | 8013007 | CONNECTOR, TUBING | | 4 |
| 13 | 8310130 | BRACKET, SOLUTION TANK MNTG | | 3 |
| 14 | 8310124 | ELBOW, G1/2 | | 1 |
| 15 | 8310142 | NUT, M36 | | 1 |
| 16 | 8310141 | SEALING | | 2 |
| 17 | 1221512 | SCREW, PAN HEAD, M5×12 | | 9 |
| 18 | 1422513 | LOCK WASHER, M5 | | 4 |
| 19 | 1421510 | FLAT WASHER, M5× ϕ 10×1.0 | | 9 |
| 20 | 8311310C | SOLENOID VALVE | | 1 |
| 21 | 1021616 | BOLT, HEX HEAD, M6×16 | | 2 |
| 22 | 1422616 | LOCK WASHER M6 | | 2 |
| 23 | 1421612 | FLAT WASHER, M6× ϕ 12×1.6 | | 2 |
| 24 | 8320108 | BRACKET | | 1 |
| 25 | 8320128 | BRACKET, PROTECTIVE | | 1 |
| 26 | 8310238A | SENSOR, SOLUTION LEVEL, KIT | | 1 |
| 27 | 8310125 | CAP, SOLUTION TANK | | 1 |
| 28 | 8320123 | QUICK CONNECTOR G1/2 | | 1 |
| 29 | 8320127 | GASKET | | 1 |
| 30 | 1021825 | BOLT, HEX HEAD, M8×25 | | 1 |
| 31 | 8310225 | SLEEVE, ϕ 8.1× ϕ 12.7×7.8 | | 1 |
| 32 | 8320104 | ARM, RECOVERY TANK SUPPORT | | 1 |
| 33 | 1962050 | CLAMP, 2 INCH | | 1 |
| 34 | 8011040 | DRAIN HOSE, BLACK | | 1 |
| | 8011041 | DRAIN HOSE, BLACK | | |
| | 8320106 | DRAIN HOSE, TRANSPARENT, OPTION | | |
| 35 | 8320121 | FLOAT VALVE | | 1 |
| 36 | 8320122 | ELBOW, G1/2 | | 1 |
| 37 | 8310123 | ADAPTER, STRAINER ASSEMBLY | | 1 |
| 38 | 8310122 | STRAINER | | 1 |
| 39 | 8310463 | CAP ADAPTER | | 1 |
| 40 | 8310464 | INSERT TUBE | | 1 |
| 41 | 8310462 | CAP, BOTTLE | | 1 |
| 42 | 8320901 | DETERGENT TANK | | 1 |
| 43 | 8113009 | CLAMP, NYLON | | 5 |

NOTE:

- ① DIA NO.25 Bracket is deprecated for design requirements.
- ② DIA NO.34 P/N:8011040 Drain hose has replaced by P/N:8011041.

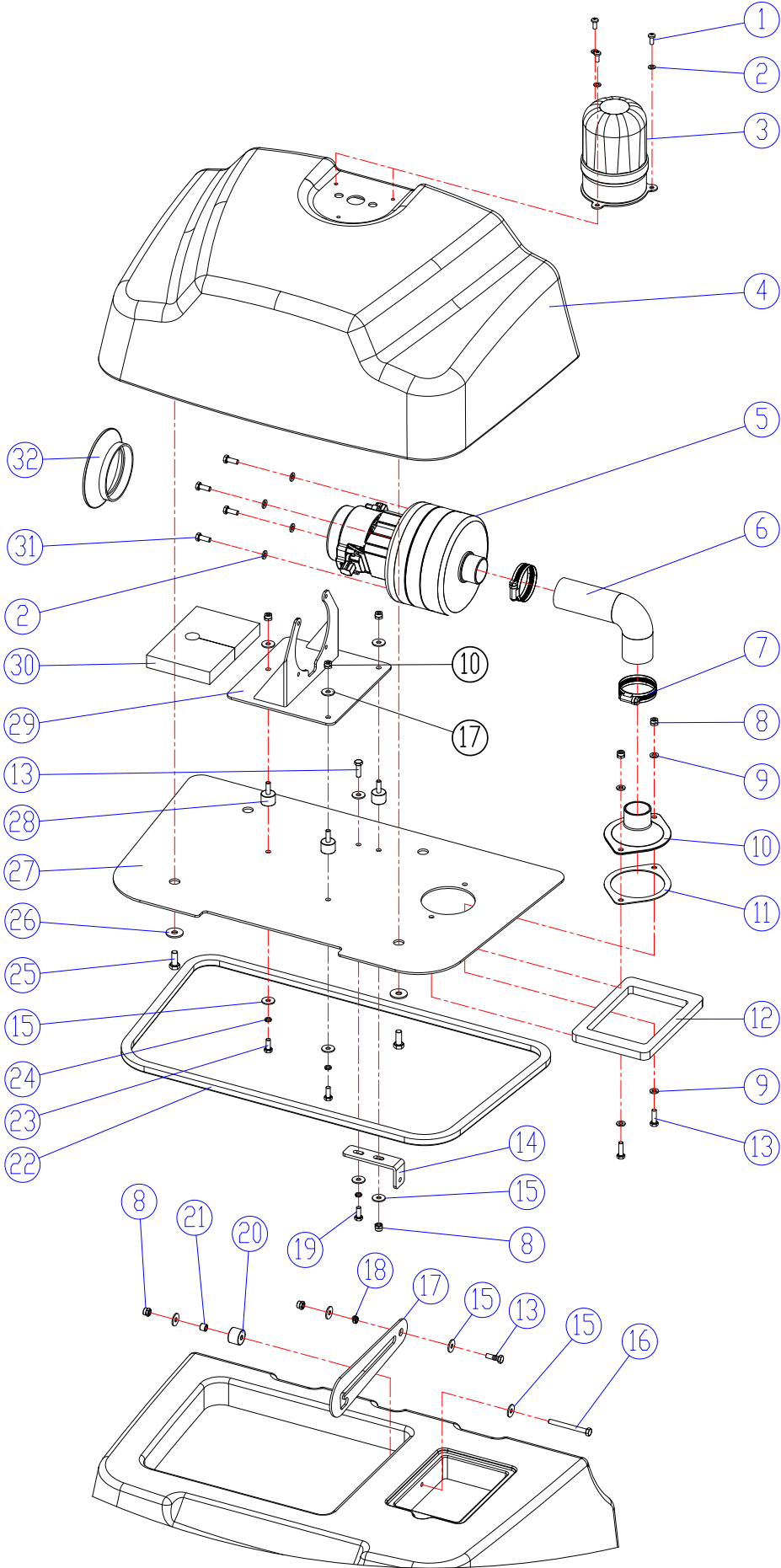
RECOVERY TANK GROUP



RECOVERY TANK GROUP

| DIA NO. | PART NUMBER | DESCRIPTION | SERIAL NUMBER | NO REQ'D |
|----------------|--------------------|-------------------------------------|----------------------|-----------------|
| 1 | 8310250 | DEBRIS COLLECTOR | | 1 |
| 2 | 8012008 | BUSHING | | 2 |
| 3 | 1421618 | FLAT WASHER, M6× ϕ 18×1.6 | | 2 |
| 4 | 1321413 | SELF-TAPPING, ST4.8 x 13 | | 2 |
| 5 | 1221516 | SCREW, PAN HEAD, M5X16 | | 8 |
| 6 | 1421510 | FLAT WASHER, M5× ϕ 10×1.0 | | 21 |
| 7 | 6210120 | CLAMP, HOSE | | 2 |
| 8 | 8011040 | DRAIN HOSE | | 1 |
| 9 | 2310129 | CLAMP, HOSE | | 2 |
| 10 | 1962050 | CLAMP, 2 INCH | | 1 |
| 11 | 4010316 | ICE LOGO | | 2 |
| 12 | 1021820 | BOLT, HEX HEAD, M8×20 | | 21 |
| 13 | 1421824 | FLAT WASHER, M8× ϕ 24×2.0 | | 25 |
| 14 | 8310126 | HINGE ASSY. | | 2 |
| 15 | 8130099 | DECAL, I-SYNERGY | | 2 |
| 16 | 1221512 | SCREW, PAN HEAD, M5×12 | | 13 |
| 17 | 8320903 | DECAL, DETERGENT INSTRUCTION | | 1 |
| 18 | 8320211 | LOCK WITH HINGE | | 1 |
| 19 | 8320210 | COVER | | 1 |
| 20 | 1422513 | LOCK WASHER, M5 | | 4 |
| 21 | 8320224 | HOOK, LOCK | | 1 |
| 22 | 8113009 | CLAMP, NYLON | | 8 |
| 23 | 8310221 | SPACER | | 2 |
| 24 | 8310220 | COMPRESSION SPRING | | 2 |
| 25 | 8310222 | FLAT WASHER, LARGE | | 4 |
| 26 | 8320220 | COVER, SOLUTION TANK | | 1 |
| 27 | 8320223 | SEALING STRIP | | 1 |
| 28 | 1022860 | BOLT, HEX HEAD, M8×60 | | 2 |
| 29 | 1123810 | LOCK NUT, M8 | | 1 |
| 30 | 8320104 | ARM, RECOVERY TANK SUPPORT | | 1 |
| 31 | 1021825 | BOLT, HEX HEAD, M8×25 | | 1 |
| 32 | 8310225 | SLEEVE, ϕ 8.1× ϕ 12.7×7.8 | | 2 |
| 33 | 8320203 | ARM, RECOVERY TANK SUPPORT | | 1 |
| 34 | 8310215 | RECOVERY TANK SUPPORT | | 1 |
| 35 | 8310211 | BRACKET, SUPPORT | | 1 |
| 36 | 8310214 | SPACER, RUBBER | | 1 |
| 37 | 8310238A | SENSOR, SOLUTION LEVEL, KIT | | 1 |
| 38 | 8320201 | RECOVERY TANK | | 1 |
| 39 | 8310237 | FILTER, DUST | | 1 |
| 40 | 8310227 | HINGE, WELDED | | 2 |
| 41 | 1513820 | SCREW, HEX SOCKET, M8×20 | | 2 |
| 42 | 8310226 | HINGE, LEAF | | 2 |

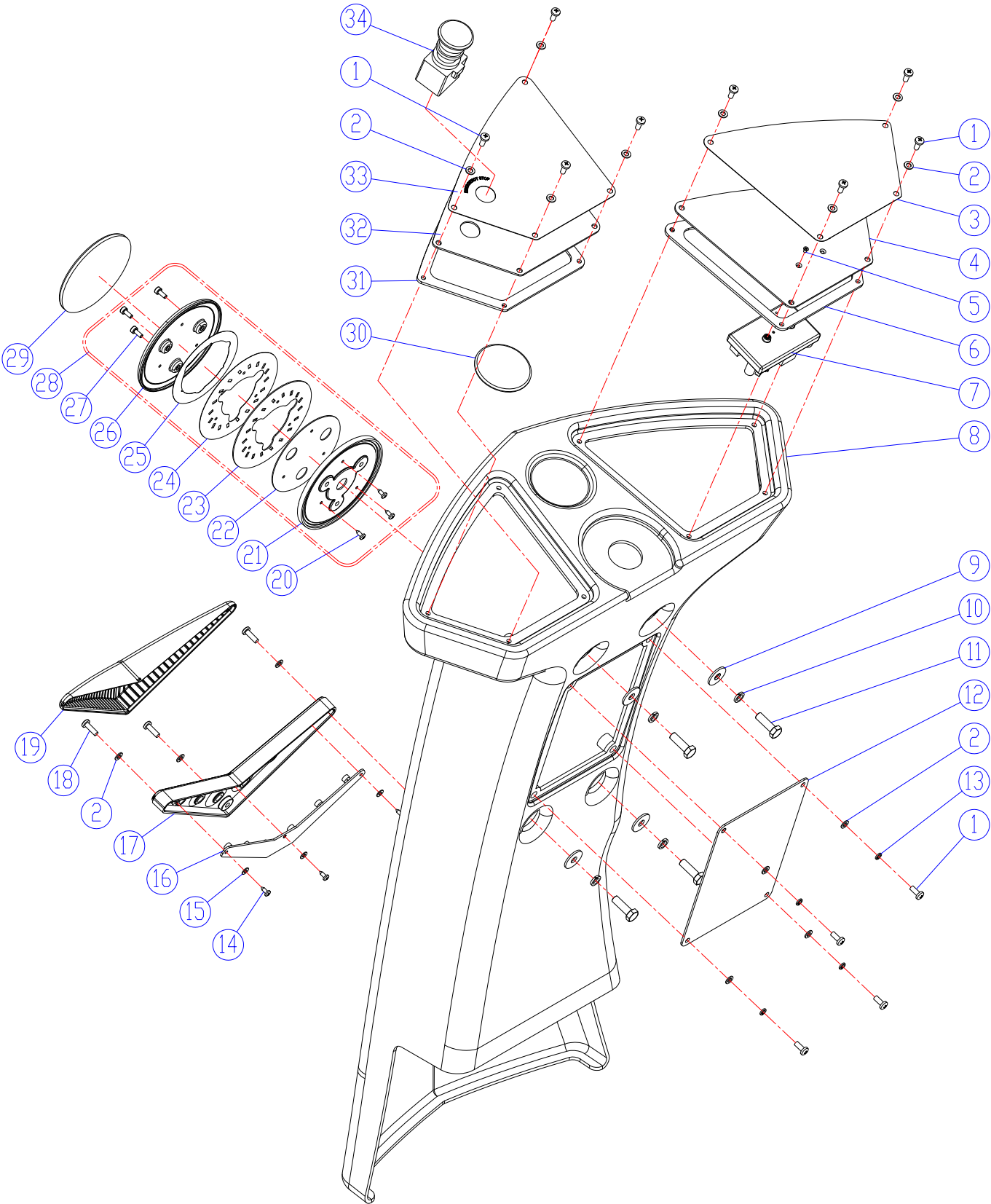
RECOVERY TANK COVER GROUP



RECOVERY TANK COVER GROUP

| DIA NO. | PART NUMBER | DESCRIPTION | SERIAL NUMBER | NO REQ'D |
|----------------|--------------------|---------------------------------|----------------------|-----------------|
| 1 | 1221512 | SCREW, PAN HEAD, M5×12 | | 3 |
| 2 | 1421510 | FLAT WASHER, M5×φ10×1.0 | | 7 |
| 3 | 8310165A | CAUTION LIGHT, KIT | | 1 |
| 4 | 8310202 | RECOVERY TANK COVER | | 1 |
| 5 | 8310210 | VACUUM MOTOR,3 STAGE,KIT | | 1 |
| | 8112008 | CARBON BRUSH FOR 8310210 | | 2 |
| | 8310260 | AMETEK VACUUM MOTOR,3 STAGE,KIT | | 1 |
| | 8132006 | CARBON BRUSH FOR 8310260 | | 2 |
| 6 | 8310207 | VACUUM HOSE | | 1 |
| 7 | 1962050 | CLAMP, 2 INCH | | 2 |
| 8 | 1123608 | LOCK NUT, M6 | | 8 |
| 9 | 1421612 | FLAT WASHER, M6×φ12×1.6 | | 4 |
| 10 | 8310204 | ADAPTER, VACUUM HOSE | | 1 |
| 11 | 8310205 | GASKET, ADAPTER | | 1 |
| 12 | 8310230 | GASKET, DUST FILTER | | 1 |
| 13 | 1021620 | BOLT, HEX HEAD, M6×20 | | 4 |
| 14 | 8310232 | BRACKET | | 1 |
| 15 | 1421618 | FLAT WASHER, M6×φ18×1.6 | | 12 |
| 16 | 1022600 | BOLT, HEX HEAD, M6×100 | | 1 |
| 17 | 8310228 | SUPPORT, RECOVERY TANK COVER | | 1 |
| 18 | 8310231 | SLEEVE, φ6.4×φ9.5×4 | | 1 |
| 19 | 1021616 | BOLT, HEX HEAD, M6×16 | | 1 |
| 20 | 8310236 | SPACER, NYLON | | 1 |
| 21 | 8310235 | SLEEVE, φ6.4×φ9.5×8 | | 1 |
| 22 | 8310229 | SEALING STRIP | | 1 |
| 23 | 1021610 | BOLT, HEX HEAD, M6×10 | | 2 |
| 24 | 1422616 | LOCK WASHER, M6 | | 3 |
| 25 | 1021820 | BOLT, HEX HEAD, M8×20 | | 4 |
| 26 | 1421824 | FLAT WASHER, M8×φ24×2.0 | | 4 |
| 27 | 8310203 | PLATE, VACCUM MOTOR MNTG | | 1 |
| 28 | 8310208 | ISOLATER, M6 | | 3 |
| 29 | 8310209 | BRACKET, VACCUM MOTOR | | 1 |
| 30 | 8310234 | INSULATION | | 1 |
| 31 | 1311316 | SCREW, SELF-TAPPING, ST4.8×16 | | 4 |
| 32 | 8310206 | SEAL, FAN | | 1 |

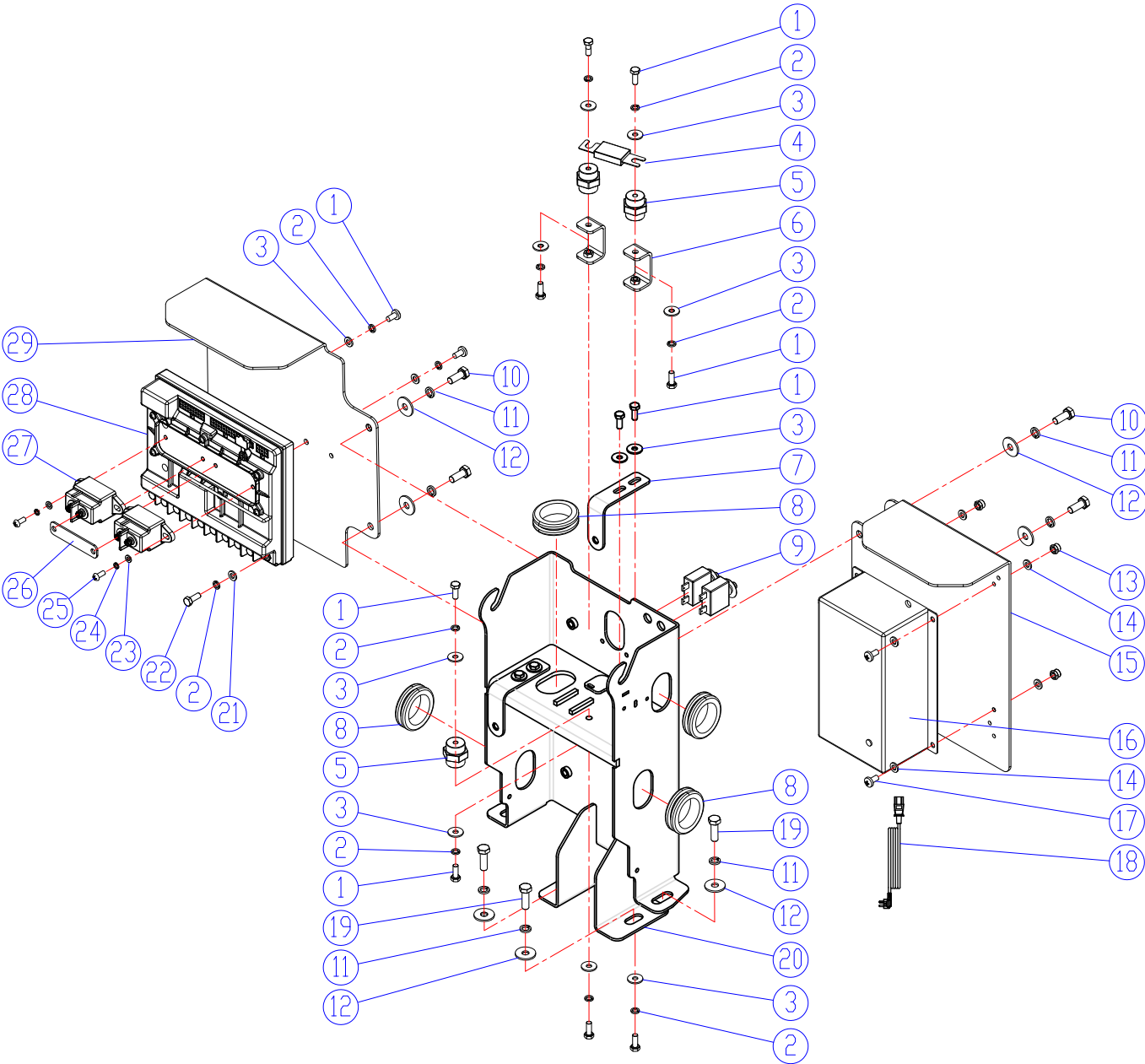
CONTROL PANEL GROUP



CONTROL PANEL GROUP

| DIA NO. | PART NUMBER | DESCRIPTION | SERIAL NUMBER | NO REQ'D |
|----------------|--------------------|----------------------------------|------------------------------|-----------------|
| 1 | 1221512 | SCREW, PAN HEAD, M5×12 | | 12 |
| 2 | 1421510 | FLAT WASHER, M5.3× ϕ 10×1.0 | | 15 |
| 3 | 8313709 | DECAL, CONTROL PANEL | | 1 |
| 4 | 8313706 | PLATE, CONTROL PANEL | | 1 |
| 5 | 1222305 | SCREW, COUNTERSUNK HEAD M3×5 | | 2 |
| 6 | 8310712 | GASKET, CONTROL PANEL | | 1 |
| 7 | 8134768 | RFID BOARD | ~60307100239 ~60306100312 | 1 |
| | 8314775 | RFID BOARD | | |
| 8 | 8313730 | CONROL HOUSING | | 1 |
| 9 | 1421824 | FLAT WASHER, M8× ϕ 24×2.0 | | 4 |
| 10 | 1422821 | LOCK WASHER, M8 | | 4 |
| 11 | 1021825 | BOLT, HEX HEAD, M8×25 | | 4 |
| 12 | 8313711 | COVER | | 1 |
| 13 | 1422513 | SPRING LOCK WASHER, M5 | | 4 |
| 14 | 1321110 | SCREW, SELF-TAPPING, ST3.5×10 | | 3 |
| 15 | 1421409 | FLAT WASHER, M4× ϕ 9×0.8 | | 3 |
| 16 | 8133610 | LED LIGHT, KIT | | 1 |
| 17 | 8133601 | BASE, LED LIGHT | | 1 |
| 18 | 1221520 | SCREW, PAN HEAD, M5×20 | | 3 |
| 19 | 8133602 | COVER, LED LIGHT | | 1 |
| 20 | 1311006 | SELF-TAPPING CREW, ST3.0×6.0 | | 3 |
| 21 | 8230401 | BASD, LED LIGHT | | 1 |
| 22 | 8230403 | LED PCB | | 1 |
| 23 | 8230405 | LIGHT GUIDE PLATE | | 1 |
| 24 | 8230404 | REFLECTOR | | 1 |
| 25 | 8230406 | DISPERSE PIECE | | 1 |
| 26 | 8230402 | COVER, LED LIGHT | | 1 |
| 27 | 1521410 | SCREW, SOCKET HEAD, M4×10 | | 3 |
| 28 | 8230400 | LED LIGHT KIT | | 1 |
| 29 | 4010316 | ICE LOGO | | 1 |
| 30 | 2010121 | ICE LOGO, SMALL | | 1 |
| 31 | 8310755 | GASKET, SWITCH PANEL | | 1 |
| 32 | 8313705 | PLATE, LEFT SWITCH PANEL | | 1 |
| 33 | 8313707 | DECAL, LEFT CONTROL PANEL | | 1 |
| 34 | 8310707 | EMERGENCY STOP SWITCH | | 1 |

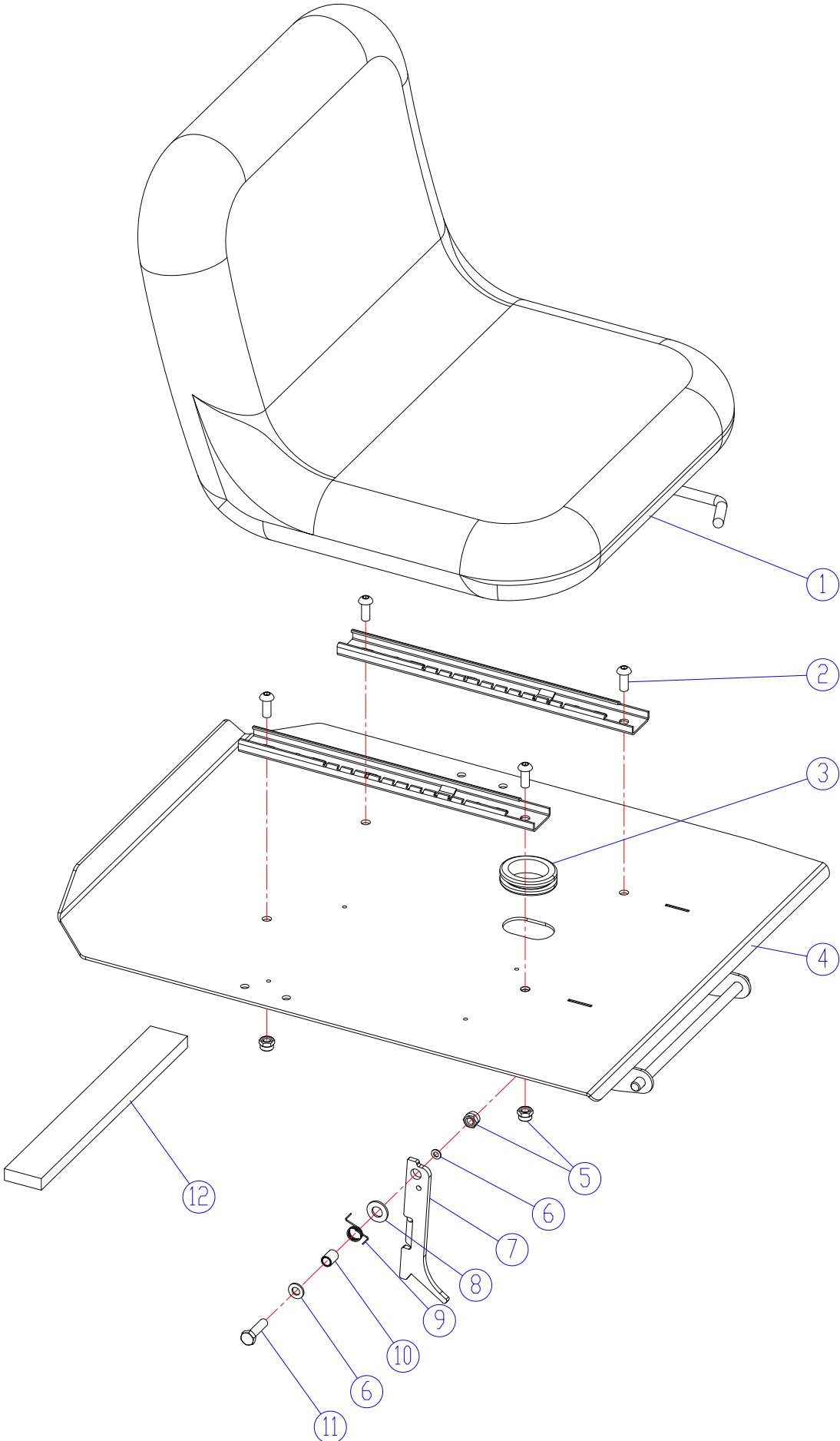
MAIN CONTROLLER GROUP



CONTROLLER GROUP

| DIA NO. | PART NUMBER | DESCRIPTION | SERIAL NUMBER | NO REQ'D |
|---------|-------------|----------------------------------|------------------------------|----------|
| 1 | 1021616 | SCREW, HEX HEAD, M6×16 | | 12 |
| 2 | 1422616 | LOCK WASHER, M6 | | 20 |
| 3 | 1421618 | FLAT WASHER, M6× ϕ 18×1.6 | | 14 |
| 4 | 8310480 | FUSE, 150A | | 1 |
| 5 | 8114705 | INSULATOR | | 3 |
| 6 | 8310422 | BRACKET, INSULATOR | | 2 |
| 7 | 8360425 | BRACKET | | 2 |
| 8 | 8310133 | RUBBER GROMMET | | 4 |
| 9 | 8310740 | CIRCUIT BREAKER, 5A | | 2 |
| 10 | 1021820 | BOLT, HEX HEAD, M8×20 | | 4 |
| 11 | 1422821 | SPRING LOCK WASHER, M8 | | 9 |
| 12 | 1421828 | FLAT WASHER, M8× ϕ 28×2.5 | | 9 |
| 13 | 1123507 | LOCK NUT, M5 | | 4 |
| 14 | 1421510 | FLAT WASHER, M5.3× ϕ 10×1.0 | | 8 |
| 15 | 8320454 | BRACKET, CHARGER | | 1 |
| 16 | 8311720 | ON BOARD BATTERY CHARGER, 30A | ~60306100309 ~60307100239 | 1 |
| | 8350509 | ON BOARD BATTERY CHARGER, 30A | | 1 |
| 17 | 1221512 | SCREW, PAN HEAD, M5×12 | ~60306100309 ~60307100239 | 4 |
| | 1221520 | | | |
| 18 | 8112030 | POWER CORD, BATTERY CHARGER, US | | 1 |
| | 8112040 | POWER CORD, BATTERY CHARGER, EU | | 1 |
| | 8112050 | POWER CORD, BATTERY CHARGER, JP | | 1 |
| | 8112060 | POWER CORD, BATTERY CHARGER, CH | | 1 |
| | 8112070 | POWER CORD, BATTERY CHARGER, UK | | 1 |
| 19 | 1021825 | BOLT, HEX HEAD, M8×25 | | 5 |
| 20 | 8360450 | BRACKET, CYLINDRICAL LIFTING | | 1 |
| 21 | 1423612 | FLAT WASHER M6× ϕ 12×1 | | 10 |
| 22 | 1023612 | HEX BOLT M6 × 12, COPPER | | 10 |
| 23 | 1421409 | FLAT WASHER, M4× ϕ 9×0.8 | | 4 |
| 24 | 1422411 | LOCK WASHER, M4 | | 4 |
| 25 | 1221416 | SCREW, HEX HEAD, M4×16 | | 4 |
| 26 | 8313421 | CONNECT PLATE | | 1 |
| 27 | 8313420 | RELAY, 24VDC 120A | | 2 |
| 28 | 8313400 | MAIN CONTROLLER | | 1 |
| 29 | 8320453 | BRACKET, MAIN CONTROLLER | | 1 |

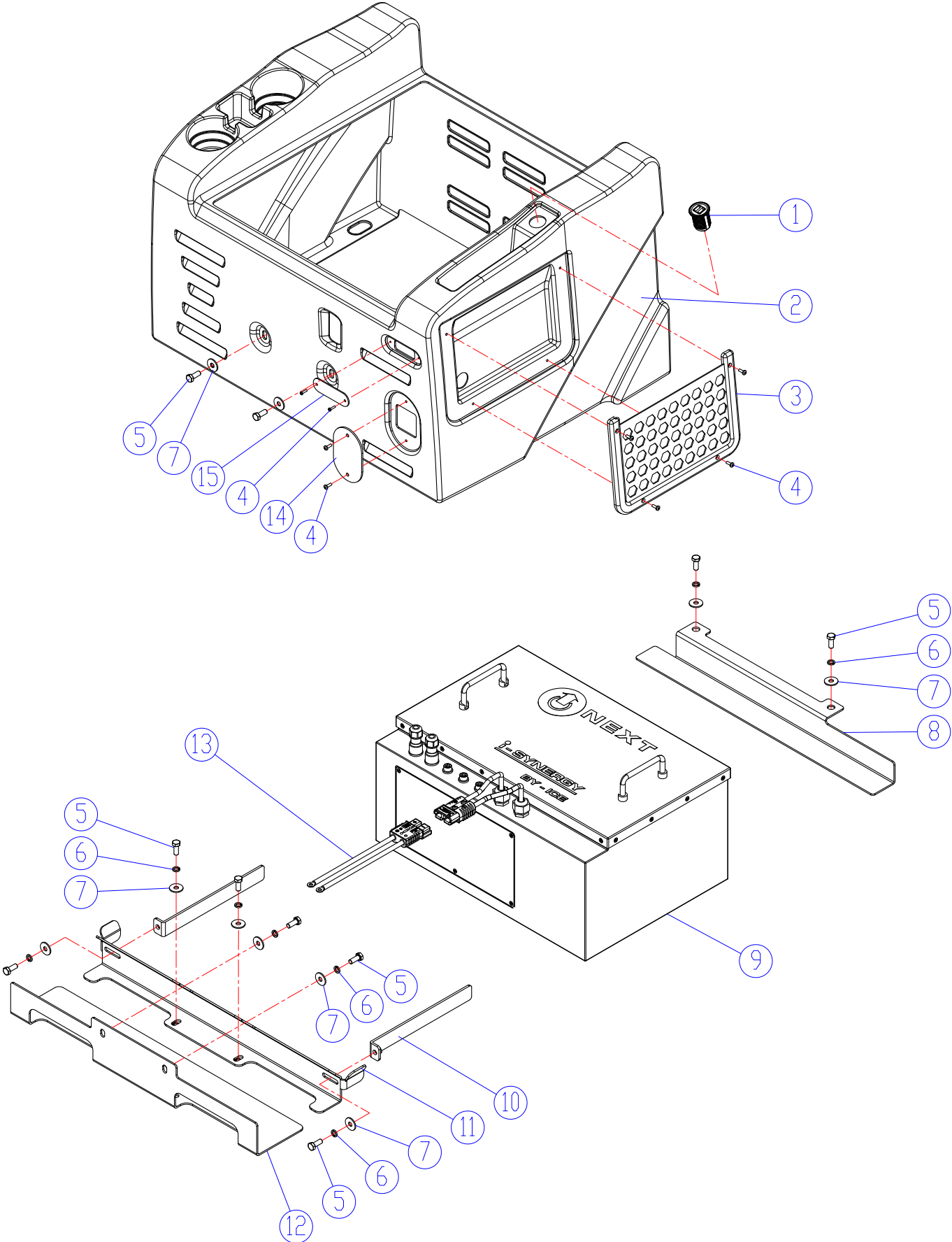
SEAT GROUP



SEAT GROUP

| DIA NO. | PART NUMBER | DESCRIPTION | SERIAL NUMBER | NO REQ'D |
|----------------|--------------------|----------------------------------|----------------------|-----------------|
| 1 | 8310402K | SEAT, KIT | | 1 |
| | 8310402A | LOCK SWITCH,ACCESSORIES FOR SEAT | | 1 |
| 2 | 1512820 | SCREW, HEX SOCKET, M8×20 | | 4 |
| 3 | 8310133 | RUBBER GROMMET | | 1 |
| 4 | 8310411 | PLATE, SEAT MNTG | | 1 |
| 5 | 1123810 | LOCK NUT M8 | | 5 |
| 6 | 1421816 | FLAT WASHER, M8× ϕ 16×1.0 | | 2 |
| 7 | 8310413 | SUPPORT, SEAT | | 1 |
| 8 | 8117007 | NYLON SPACER | | 1 |
| 9 | 8310415 | TORSION SPRING | | 1 |
| 10 | 8310414 | SLEEVE, ϕ 8.2× ϕ 11×15 | | 1 |
| 11 | 1031830 | BOLT, HEX HEAD, M8×30 | | 1 |
| 12 | 8310460 | SPACER | | 1 |

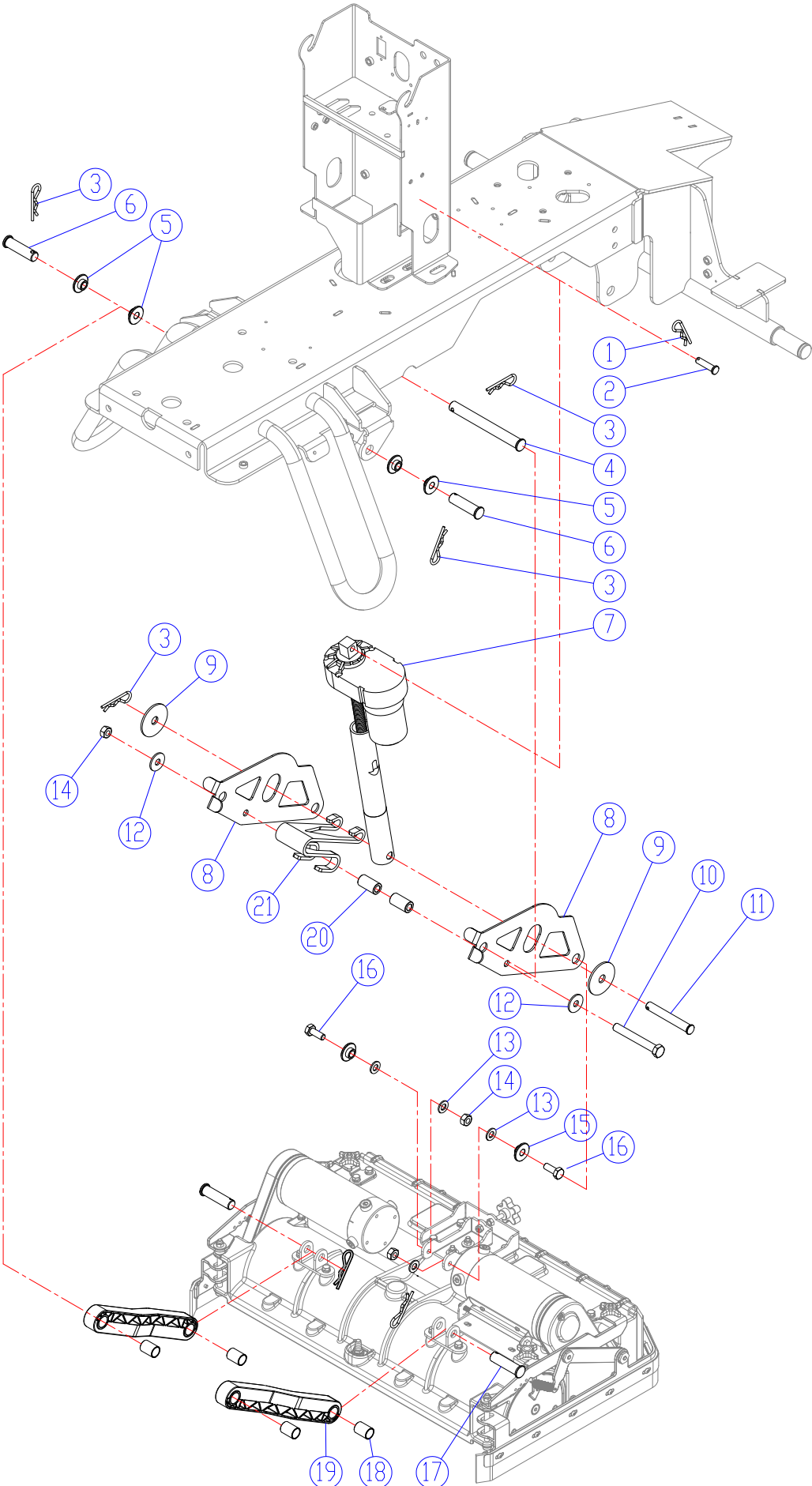
BATTERY GROUP



BATTERY GROUP

| DIA NO. | PART NUMBER | DESCRIPTION | SERIAL NUMBER | NO REQ'D |
|----------------|--------------------|--------------------------------|----------------------|-----------------|
| 1 | 8310420 | USB CHARGE PORT | | 1 |
| 2 | 8320401 | BOX, BATTERY | | 1 |
| 3 | 8320411 | CARGO MESH | | 1 |
| 4 | 1221410 | SCREW, PAN HEAD, M4×10 | | 8 |
| 5 | 1021820 | BOLT, HEX HEAD, M8×20 | | 10 |
| 6 | 1422821 | SPRING LOCK WASHER, M8 | | 8 |
| 7 | 1421824 | FLAT WASHER, M8× ϕ 24×2.0 | | 10 |
| 8 | 8320103 | SUPPORT, BATTERY, REAR | | 1 |
| 9 | N240650 | LITHIUM-ION BATTERY, 240AH | | 1 |
| 10 | 8310407 | PLATE | | 2 |
| 11 | 8320452 | SUPPORT, BATTERY, FRONT | | 1 |
| 12 | 8320451 | FIXED BOARD, BATTERY | | 1 |
| 13 | 8311741 | BATTERY CONNECT CABLE | | 1 |
| 14 | 8210114 | COVER | | 1 |
| 15 | 8134061 | SCREEN, CHARGER | ~60307100250 | 1 |
| | 8134069 | SCREEN, CHARGER | | |

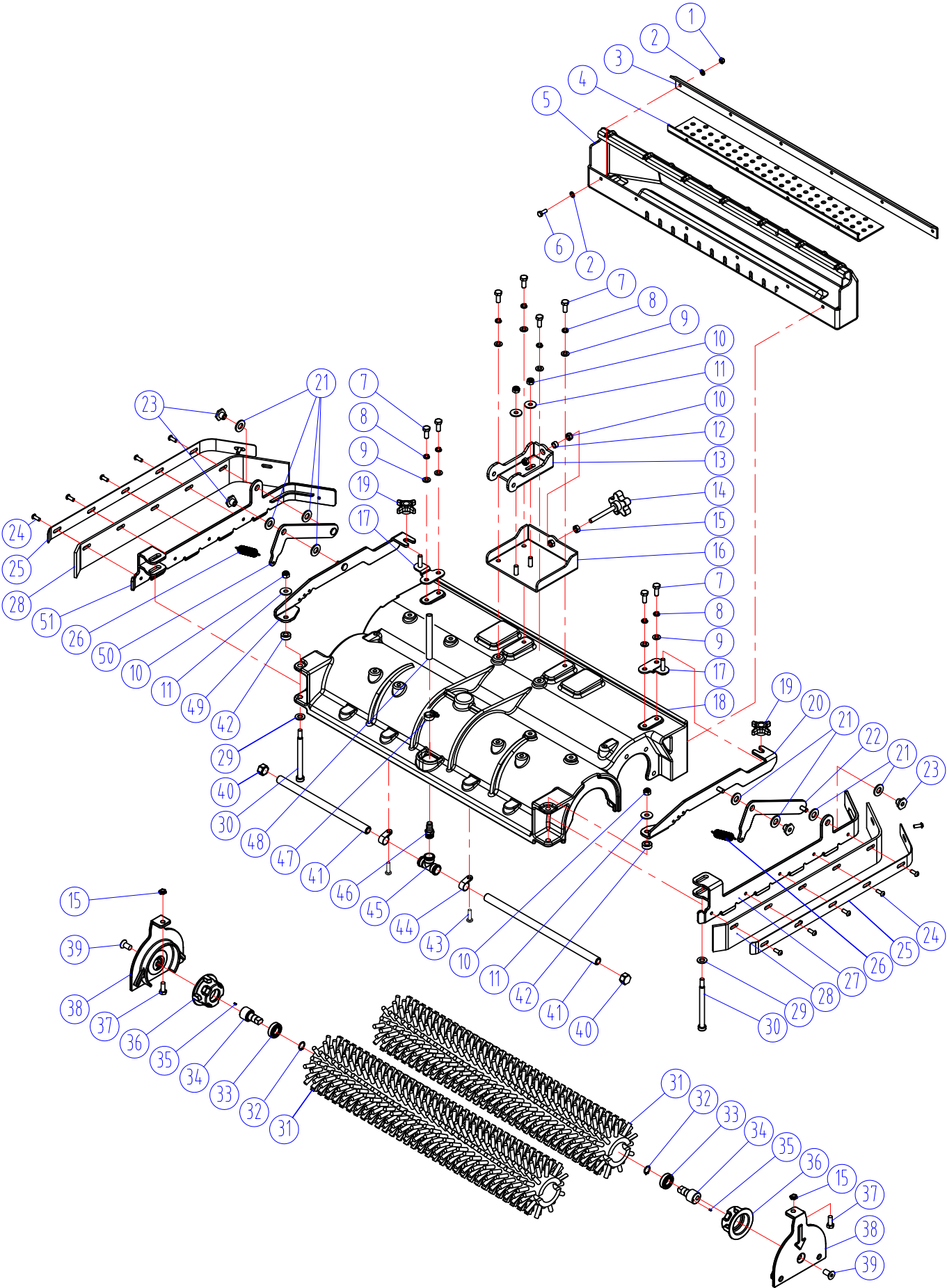
CYLINDRICAL LIFTING GROUP



CYLINDRICAL LIFTING GROUP

| DIA NO. | PART NUMBER | DESCRIPTION | SERIAL NUMBER | NO REQ'D |
|----------------|--------------------|--|----------------------|-----------------|
| 1 | 8310320 | PIN, COTTER | | 1 |
| 2 | 8210301 | PIN, $\phi 9.5 \times 38$ | | 1 |
| 3 | 8210309 | PIN, COTTER | | 6 |
| 4 | 8310311 | PIN, $\phi 16 \times 150$ | | 1 |
| 5 | 8320129 | BUSHING | | 4 |
| 6 | 8320130 | PIN, $\phi 16 \times 63$ | | 4 |
| 7 | 8310303A | LINEAR ACTUATOR, KIT | | 1 |
| 8 | 8310305 | PLATE, ARM, SCRUB HEAD LIFTING | | 2 |
| 9 | 8310314 | FLAT WASHER, LARGE | | 2 |
| 10 | 1032090 | BOLT, HEX HEAD, M10 \times 90 | | 1 |
| 11 | 8310313 | PIN, $\phi 12 \times 90$ | | 1 |
| 12 | 1421030 | FLAT WASHER, M10 \times $\phi 30 \times 2.5$ | | 4 |
| 13 | 1421020 | FLAT WASHER, M10 \times $\phi 20 \times 2$ | | 4 |
| 14 | 1123012 | LOCK NUT, M10 | | 3 |
| 15 | 8310307 | BUSHING, FLANGE | | 2 |
| 16 | 1021035 | BOLT, HEX HEAD, M10 \times 35 | | 4 |
| 17 | 8310312 | PIN, $\phi 16 \times 57$ | | 2 |
| 18 | 8310144 | SLEEVE, $\phi 16 \times \phi 18.6 \times 25.4$ | | 4 |
| 19 | 8310118 | ARM, SCRUB HEAD LIFTING | | 2 |
| 20 | 8310306 | SLEEVE, $\phi 10.5 \times \phi 18.5 \times 34$ | | 2 |
| 21 | 8310308 | SPRING | | 1 |

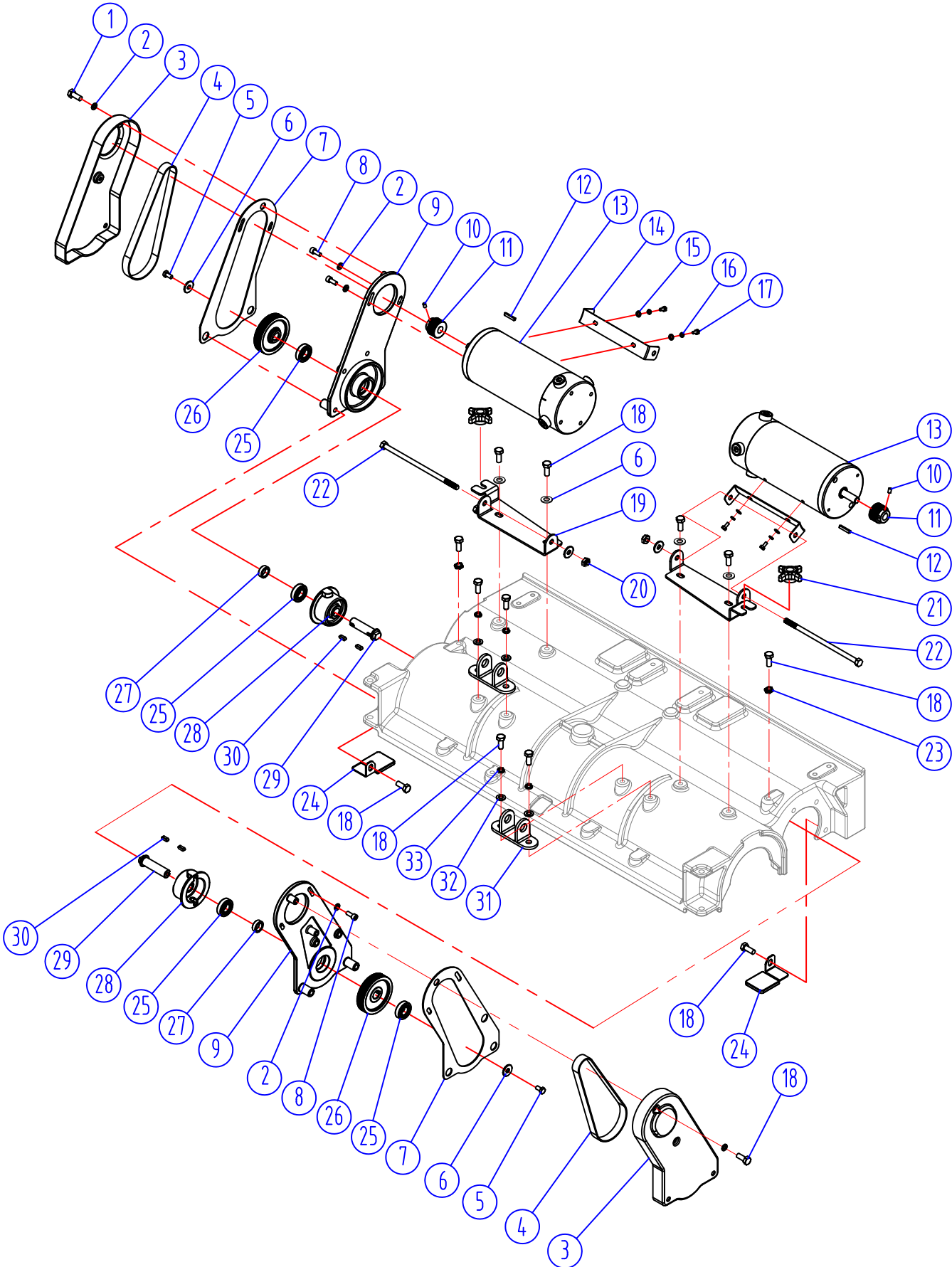
CYLINDRICAL SCRUB HEAD GROUP



CYLINDRICAL SCRUB HEAD GROUP

| DIA NO. | PART NUMBER | DESCRIPTION | SERIAL NUMBER | NO REQ'D |
|---------|-------------|--------------------------------------|---------------|----------|
| 1 | 1123608 | LOCK NUT, M6 | | 6 |
| 2 | 1421612 | FLAT WASHER, M6 X 12 X 1.6 | | 12 |
| 3 | 8216107 | LIP, HOPPER | | 1 |
| 4 | 8236020 | STRIP, HOPPER | | 1 |
| 5 | 8360312 | HOPPER, 28" | | 1 |
| 6 | 1021616 | HEX BOLT, M6 X 16 | | 6 |
| 7 | 1021820 | HEX BOLT, M8 X 20 | | 8 |
| 8 | 1422821 | LOCK WASHER, M8 | | 8 |
| 9 | 1421816 | FLAT WASHER, M8× ϕ 16×1.6 | | 8 |
| 10 | 1123810 | LOCK NUT M8 | | 6 |
| 11 | 1421824 | FLAT WASHER, M8× ϕ 24×2.0 | | 4 |
| 12 | 8211508 | BUSHING | | 1 |
| 13 | 8360303 | BRACKET, ADJUSTING | | 1 |
| 14 | 8701002 | KNOB, M8X70 | | 1 |
| 15 | 1121807 | HEX NUT, M8 | | 1 |
| 16 | 8360302 | BRACKET | | 1 |
| 17 | 8360354 | BRACKET | | 1 |
| 18 | 8360311 | HOUSING CYLINDRICAL, 28" | | 1 |
| 19 | 8118003 | KNOB, M8 | | 2 |
| 20 | 8360351 | LEFT BRACKET | | 1 |
| 21 | 8117007 | NYLON SPACER | | 8 |
| 22 | 8360352 | SPRING LEVER, LEFT | | 1 |
| 23 | 8360355 | NUT M8 | | 4 |
| 24 | 1514616 | SCREW, SOCKET HEAD, M6×16 | | 12 |
| 25 | 8320353 | CLAMP PLATE, SKIRT | | 2 |
| 26 | 8360357 | SPRING | | 2 |
| 27 | 8360353 | SKIRT BRACKET, LEFT | | 1 |
| 28 | 8320354 | SQUEEGEE BLADE, SKIRT | | 2 |
| | 8360451 | SQUEEGEE BLADE, SKIRT, FOR US MARKET | | 4 |
| 29 | 1421020 | FLAT WASHER, M10× ϕ 20×2 | | 2 |
| 30 | 8360358 | BOLT, SHOULDER | | 2 |
| 31 | 8216105 | BRUSH, CYLINDRICAL, 28" | | 2 |
| 32 | 1436015 | RING RETAINING, M15 | | 2 |
| 33 | 1612602 | BEARING, 6002LLU | | 2 |
| 34 | 8236009 | SHAFT, IDLER | | 2 |
| 35 | 1644206 | PIN, M2.5X6 | | 2 |
| 36 | 8236008 | PLUG, IDLER, BRUSH | | 2 |
| 37 | 1021840 | SCREW, M8 X 40 | | 2 |
| 38 | 8236002 | DOOR, BRUSH | | 2 |
| 39 | 1513020 | COUNTERSUNK HEX SCREW, M10X20 | | 2 |
| 40 | 8146303 | END CAP, 3/8" | | 2 |
| 41 | 8216108 | PVC TUBING | | 2 |
| 42 | 8360356 | SPACER | | 2 |
| 43 | 1221512 | SCREW, M5 X 12 | | 4 |
| 44 | 8146305 | PLASTIC CLAMP | | 4 |
| 45 | 8146301 | TEE FITTING, 3/8" | | 1 |
| 46 | 8013007 | TUBING FITTING | | 1 |
| 47 | 1962025 | CLAMP, 25MM | | 1 |
| 48 | 8216113 | TUBING, ID=16 X 550MM | | 1 |
| 49 | 8360361 | RIGHT BRACKET | | 1 |
| 50 | 8360362 | SPRING LEVER, RIGHT | | 1 |
| 51 | 8360363 | SKIRT BRACKET, RIGHT | | 1 |

CYLINDRICAL SCRUB DRIVE GROUP

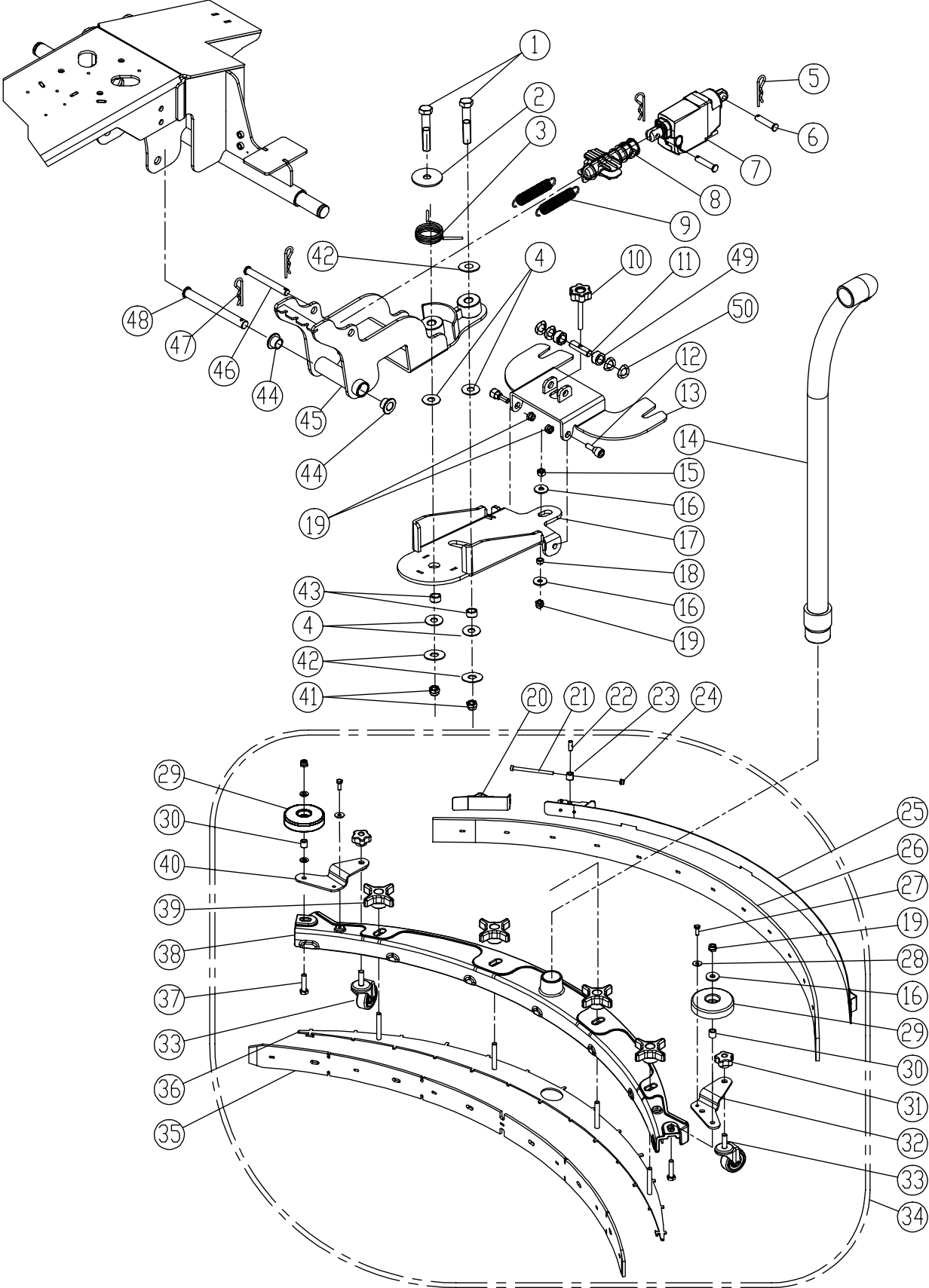


OPERATOR MANUAL

CYLINDRICAL SCRUB DRIVE GROUP

| DIA NO. | PART NUMBER | DESCRIPTION | SERIAL NUMBER | NO REQ'D |
|---------|-------------|--------------------------------|---------------|----------|
| 1 | 1521612 | HEX SOCKET SCREW, M6 X 12 | | 4 |
| 2 | 1421612 | FLAT WASHER, M6 X 12 X 1.6 | | 8 |
| 3 | 8236018 | COVER, BELT | | 2 |
| 4 | 8236027 | BELT, DRIVE, 6PJ 508MM | | 2 |
| 5 | 1021816 | HEX BOLT, M8 X 16 | | 2 |
| 6 | 1421824 | FLAT WASHER, M8 X 24 X 2 | | 8 |
| 7 | 8236029 | GASKET, BELT | | 2 |
| 8 | 1521616 | HEX SOCKET SCREW, M6 X 16 | | 4 |
| 9 | 8236017 | BRACKET, MOTOR MOUNTING | | 2 |
| 10 | 1534508 | SCREW, M5 X 8 | | 4 |
| 11 | 8236012 | DRIVING PULLEY, 6PJ | | 2 |
| 12 | 8236023 | KEY, 4 X 4 X 25 | | 2 |
| 13 | 8216102 | MOTOR, 24VDC, 0.75HP | | 2 |
| 14 | 1421511 | FLAT WASHER, M5 X 12 X 1 | | 4 |
| 15 | 1021512 | HEX BOLT, M5 X 12 | | 4 |
| 16 | 1422513 | WASHER, LOCK, M5 X 12 X 1 | | 4 |
| 17 | 8236015 | ANGLE BRACKET, MOTOR | | 2 |
| 18 | 1021820 | HEX BOLT, M8 X 20 | | 22 |
| 19 | 8236016 | BRACKET, MOTOR | | 2 |
| 20 | 1123810 | LOCK NUT, M8 | | 2 |
| 21 | 8118003 | STAR KNOB, M8 | | 2 |
| 22 | 8236034 | HEX BOLT, M8 X 185 | | 2 |
| 23 | 1121804 | NUT, M8 | | 2 |
| 24 | 8236021 | DEFLECTOR, WATER | | 2 |
| 25 | 1612602 | BEARING, 6002LLU | | 4 |
| 26 | 8236007 | DRIVEN PULLEY, 6PJ | | 2 |
| 27 | 8236024 | BUSHING | | 2 |
| 28 | 8236025 | PLUG, DRIVE, BRUSH | | 2 |
| 29 | 8236010 | SHAFT | | 2 |
| 30 | 1655015 | KEY, 5 X 5 X 15 | | 4 |
| 31 | 8360301 | BRACKET | | 2 |
| 32 | 1421816 | FLAT WASHER, M8× ϕ 16×1.6 | | 4 |
| 33 | 1422821 | LOCK WASHER, M8 | | 4 |

CYLINDRICAL SCRUB DRIVE GROUP



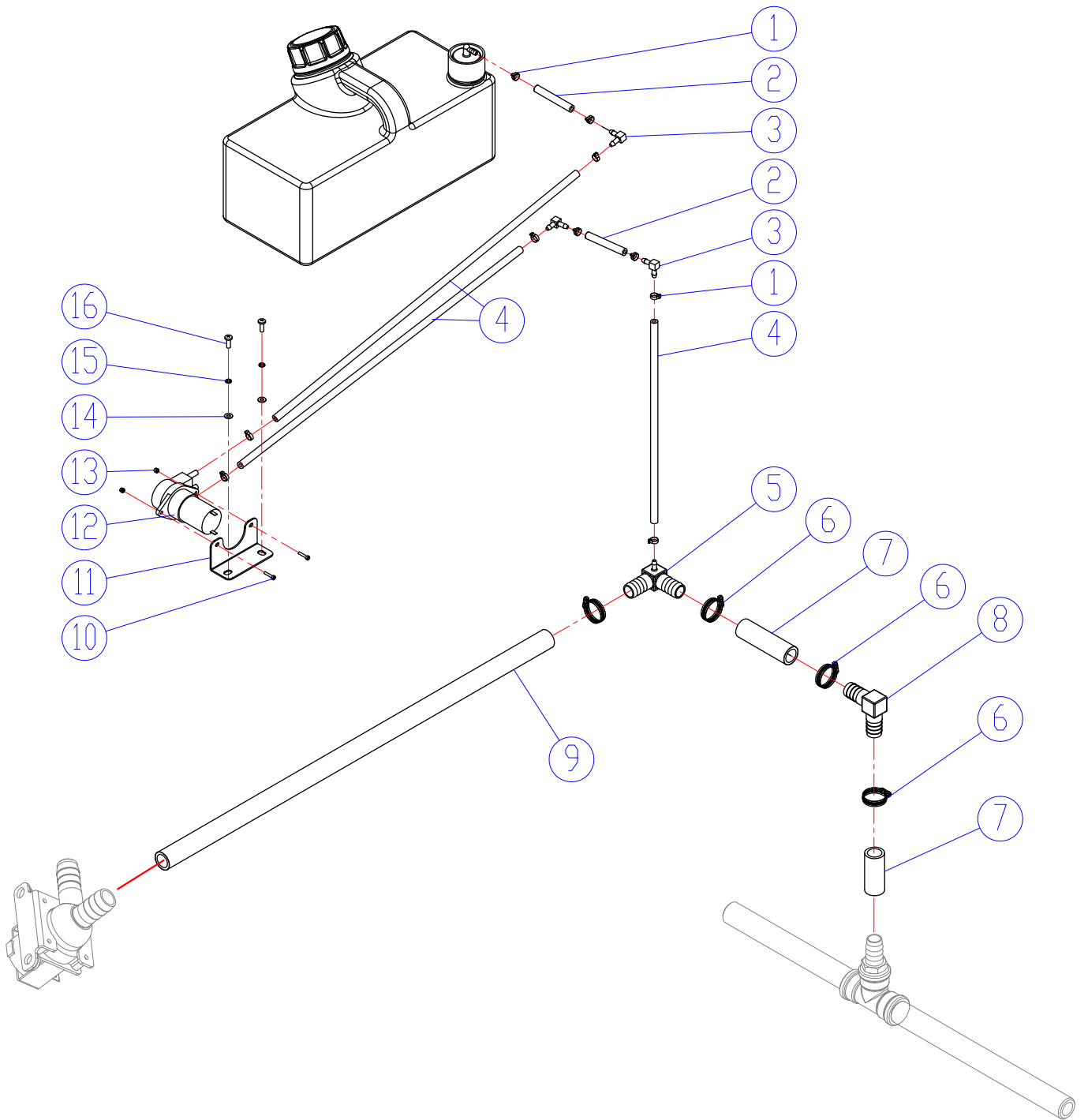
SQUEEGEE GROUP

| DIA NO. | PART NUMBER | DESCRIPTION | SERIAL NUMBER | NO REQ'D |
|----------------|--------------------|----------------------------------|----------------------|-----------------|
| 1 | 1021265 | BOLT, HEX HEAD, M12×65 | | 2 |
| 2 | 8310314 | FLAT WASHER, M13×φ55×3 | | 1 |
| 3 | 8320503 | TORSION SPRING | | 1 |
| 4 | 8321516 | PLASTIC WASHER φ 16.2× φ 30×1.5 | | 4 |
| 5 | 8310320 | PIN, COTTER | | 2 |
| 6 | 8310506 | PIN, φ10×45 | | 2 |
| 7 | 8320501 | LINEAR, ACTUATOR | | 1 |
| 8 | 8310507 | ADAPTER | | 1 |
| 9 | 8321513 | EXTENSION SPRING | | 2 |
| 10 | 8701002 | KNOB M8×70 | | 1 |
| 11 | 8211506 | SHAFT | | 1 |
| 12 | 8211504 | SHOULDER BOLT | | 2 |
| 13 | 8321503 | BRACKET, SQUEEGEE INSTALL | | 1 |
| 14 | 8310270 | VACUUM HOSE | | 1 |
| 15 | 1123807 | HEX NUT, M8 | | 1 |
| 16 | 1421824 | FLAT WASHER, M8×φ24×2.0 | | 6 |
| 17 | 8321511 | BRACKET, SQUEEGEE SWING | | 1 |
| 18 | 8211508 | BUSHING | | 1 |
| 19 | 1123810 | LOCK NUT M8 | | 5 |
| 20 | 8210525 | SHORT CLAMP ASSEMBLY | | 1 |
| 21 | 1221575 | SCREW, PAN HEAD, M5×75 | | 1 |
| 22 | 8118624 | SHAFT | | 1 |
| 23 | 8118623 | SPACER | | 1 |
| 24 | 1123507 | LOCK NUT, M5 | | 1 |
| 25 | 8310514 | CLAMP ASSEMBLY, RS28L-CY | | 1 |
| 26 | 8310531 | REAR BLADE, LINATEX, RS28L-CY | | 1 |
| | 8310541 | REAR BLADE, PU, RS28L-CY, OPTION | | 1 |
| 27 | 1021616 | BOLT, HEX HEAD, M6×16 | | 2 |
| 28 | 1421612 | FLAT WASHER, M6×φ12×1.6 | | 2 |
| 29 | 8116009 | PROTECTIVE WHEEL | | 2 |
| 30 | 8115404 | SLEEVE, φ8×φ12.7×12.7 | | 2 |

SQUEEGEE GROUP

| DIA NO. | PART NUMBER | DESCRIPTION | SERIAL NUMBER | NO REQ'D |
|----------------|--------------------|--|----------------------|-----------------|
| 31 | 8210532 | KNOB, M10 | | 2 |
| 32 | 8118200 | LEFT BRACKET | | 1 |
| 33 | 8310550 | CASTER, 2 INCH | | 2 |
| 34 | 8310580 | SQUEEGEE ASSEMBLY, RS28L-CY | | 1 |
| 38 | 8310534 | FRONT BLADE, LINATEX, RS28L-CY | | 1 |
| | 8310544 | FRONT BLADE, PU, RS28L-CY, OPTION | | 1 |
| 39 | 8310562 | RETAINER, SQUEEGEE, RS28L-CY | | 1 |
| 37 | 1021835 | BOLT, HEX HEAD, M8×35 | | 2 |
| 3/ | 8310561 | SQUEEGEE HOSING, RS28L-CY | | 1 |
| 39 | 8210518 | KNOB, M8 | | 4 |
| 40 | 8118300 | RIGHT BRACKET | | 1 |
| 41 | 1123115 | LOCK NUT, M12 | | 2 |
| 42 | 1421132 | FLAT WASHER ϕ 13× ϕ 32×1.5 | | 3 |
| 43 | 8321514 | SLEEVE, ϕ 12× ϕ 16×8.5 | | 2 |
| 44 | 8320507 | BUSHING | | 2 |
| 45 | 8321512 | BRACKET, SQUEEGEE | | 1 |
| 46 | 8310508 | PIN, ϕ 12×100 | | 1 |
| 47 | 8210309 | PIN, COTTER | | 2 |
| 48 | 8310311 | PIN, ϕ 16×150 | | 1 |
| 49 | 8118085 | BUSHING | | 2 |
| 50 | 1435013 | WAVE WASHER ϕ 13× ϕ 24×0.5mm | | 4 |

SOLUTION & DETERGENT SYSTEM



SOLUTION & DETERGENT SYSTEM

| DIA NO. | PART NUMBER | DESCRIPTION | SERIAL NUMBER | NO REQ'D |
|----------------|--------------------|-------------------------------|----------------------|-----------------|
| 1 | 1914080 | TIE, 3×80MM | | 10 |
| 2 | 8310910 | TUBING, ID=4MM L=100MM | | 2 |
| 3 | 8310467 | FITTING | | 3 |
| 4 | 8310905 | TUBING, ID=4MM L=330MM | | 3 |
| 5 | 8310375 | ELBOW WITH CONNECTOR | | 1 |
| 6 | 1962025 | CLAMP, 16-25MM | | 8 |
| 7 | 8310911 | TUBING, ID=16MM L=80MM | | 2 |
| 8 | 8310376 | ELBOW | | 1 |
| 9 | 8310901 | TUBING, ID=16MM L=500MM | | 1 |
| 10 | 1221310 | SCREW, PAN HEAD, M3×10 | | 2 |
| 11 | 8320911 | BRACKET, PUMP | | 1 |
| 12 | 8320910K | DETERGENT PUMP, KIT | | 1 |
| 13 | 1123305 | LOCK NUT M3 | | 2 |
| 14 | 1421409 | FLAT WASHER, M4× ϕ 9×0.8 | | 2 |
| 15 | 1422411 | LOCK WASHER, M4 | | 2 |
| 16 | 1221412 | SCREW, PAN HEAD, M4×12 | | 2 |

WEAR AND TEAR PARTS

| DIA NO. | PART NUMBER | DESCRIPTION | NO REQ'D |
|----------------|--------------------|------------------------------|-----------------|
| 1 | 8310119 | 10" WHEEL, PU TIRE | 2 |
| 2 | 8116009 | PROTECTIVE WHEEL | 2 |
| 3 | 8310362 | PROTECTIVE WHEEL | 1 |
| 4 | 8310531 | REAR BLADE, LINATEX, RS32L+ | 1 |
| 5 | 8310534 | FRONT BLADE, LINATEX, RS32L+ | 1 |
| 6 | 8216105 | CYLINDRICAL BRUSH, 28 INCH | 2 |
| 7 | 8320130 | WATER FILLING HOSE | 1 |

